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Organisations as Social Networks: Understanding Proactive Information Behaviour

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PhD

2013

Organisations as Social Networks: Understanding Proactive Information Behaviour

OSEMEKE MOSINDI

A thesis submitted in partial fulfilment
of the requirements of the
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for the degree of
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Information Sciences

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ABSTRACT

This study was carried out in the field of information behaviour, which includes information sharing behaviour. The study set out to answer the research question: what are the factors that influence proactive information sharing behaviour in organisations? The aim of the study was to explore in depth, factors that influence proactive information sharing behaviour, and understand the degree to which these factors influence proactive information sharing behaviour. The study provides a unique contribution to research by developing an understanding of factors which influence proactive information sharing behaviour in organisations; the understanding of how these factors are related in context; and the development of tools to identify proactive information sharing behaviour.

The research approach was based on a constructivist philosophical perspective, grounded in information behaviour theories and models. A case study methodology was used to collect rich data specific to each context; three cases, and two organisations were used overall, and data collection was done using mixed methods, to give a holistic understanding. Research techniques were tailored based on a theoretical framework, which included four theories; autopoiesis, social network theory, sense making, and appreciative inquiry. Data collected was analysed using the coding method used in grounded theory, going through the stages of open coding, axial coding, and some selective coding.

The key findings were: role responsibility and involvement; reciprocity and trust; open office design, open conversations, and information overload; proactivity and personality; knowledge, experience, and length of time in the organisation; use of technology and resistance to change; organisational objectives, organisational policy, organisational structure, size of group, and lack of resources; enthusiasm, satisfaction / dissatisfaction, low morale, feeling of power, and expectation; difference in objectives between colleagues, personal agenda, and lack of authority.

These factors influence the proactive information behaviour of individuals in organisations, and the influence of each factor is deeply rooted in the specific organisational context. A model of proactive information sharing behaviour was developed in this study, which illustrates and explains how the factors, intervening variables, and context, all combine to influence proactive information sharing behaviour in organisations.

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Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the School Ethics committee.

Name: OSEMEKE MOSINDI

Signature:

Date: 05/06/2013

1 Introduction

Organisations have been researched in many fields, for the purpose of trying to understand their complexities, in order to gain competitive advantage in an ever changing environment; organisations have been conceptualised as political systems and machines, among other things, for this same purpose (Morgan 2006). It is well established that information plays a big role in an organisation's success, and in a study carried out in a number of organisations by Marchand et al (2001), they identified three information capabilities that organisations need to possess to increase productivity: Information management, information technology and information behaviour (IB) and values.

This study is about the third information capability, which is information behaviour and values. The study came about as a result of a problem in a manufacturing company. The manager of the IT department wanted to develop a solution to what he called "poor information flow" in the organisation, and he was of the opinion that people rarely shared information that would be useful to others in doing their jobs. Trying to understand the actual situation better to gain a deeper understanding, led to the conception of a research question.

Background

Company Background

The company with the problem which led to this research study, manufactures safety equipment. The company is headquartered in Germany, but the research was carried out at the office in England. The company has over 250 employees, and has a hierarchical organisational structure with separate functional departments. Each department has a separate manager who reports to the Managing Director.

Project Background

There were four departments involved in the research study; production, purchasing, servicing and IT. Servicing and IT departments were involved in the early stages, helping to frame the research. Production and purchasing departments were involved in later data collection, to help answer the research question.

The production department is responsible for assembly of parts received from the German factory and for repairs of returned products from customers. This department has one manager, two administrators that serve as a communication link between the manager and the two technical groups – one engineering group in charge of production and one in charge of repairs.

The purchasing department is responsible for procurement across the whole company. This department consists of a manager, two buyers, and four quality engineers. This department also had two objectives. Buyers are responsible for purchasing goods through suppliers, and quality engineers are responsible for making sure the quality of the purchases meet organisational standards.

The service department is in charge of servicing machines in customers' environment. The department consists of a manager, two administrators and several field engineers based across the UK. The field engineers often come into the head office for administrative purposes and to collect materials.

The IT department is responsible for managing hardware resources (laptops, network), software elements such as licensing, and maintenance. At the start of the engagement, the department had one manager, one administrator, two hardware engineers and two software engineers. Sometime into the study another hardware engineer was employed.

The author's first contact with the organisation was as a result of the IT Manager's willingness to collaborate with the university. He had two potential projects, which he hoped to work with the university on. One was in developing better management information systems for the organisation and the other was with diagnosing the problems with information flow in the organisation. The first project was initially considered, but

after weighing up the resources and other commitments involved, it was dropped in favour of the latter.

Researcher's Role

The author was based in the IT department as a technical consultant. The employment came with the agreement to carry out research with the company as part of the role, and it was a part-time contract. There were three main projects that the author was involved with during his time in the department; process improvement, software licence auditing, and system development. The author reported directly to the IT manager, and came into contact with staff in all the different roles mentioned above.

Development of the Research Question

The IT manager was concerned that colleagues were not sharing information enough in the company and this was making maintenance unnecessarily expensive. When a common IT incident was highlighted and fixed, the solution was not shared with colleagues when they had similar problems, even with those in close proximity. For example, the SAP system used widely in the organisation required passwords to be changed every two weeks, although this information was always sent out, and regularly resolved for users, others continuously phone up the IT department asking for help in getting into the system because their password did not work.

It appeared to the IT manager that the information about passwords was being ignored, and when acknowledged, was not being passed on to others who had similar difficulty. The time taken to deal with these calls was not insignificant. This problem was encountered during the author's initial project with the company. To fully grasp and understand the perceived problem, the author kept a journal while engaged in official duties as a member of the IT department, two days a week, approximately eighteen hours a week.

During the initial exploration of the problem situation the author carried out structured interviews with the service department manager, one engineer and the administrator. One

of the outcomes was to build a system which would aid the collation of important servicing data, to make it easier for the administrator to provide necessary information to engineers.

After several weeks of effort put into this system, it was eventually not used, as the manager was moved to another post, and the new manager had little interest in the system. However, as part of the research and from observations and notes, the author was beginning to understand the attitudes and behaviours in the organisation.

A common response to problematic situations appeared to be to communicate in a confrontational manner, for example when sending a response to a problematic situation, rather than send a message to the individual being addressed, it would be copied into many people, including senior management. It was also observed that people were not very willing to help others except they shared a less formal relationship.

There were always complaints coming into the IT department from people in similar roles, in the same department and in relatively close proximity, complaining about the same issues. Clearly colleagues were not going out of their way to help each other. After a review of related literature, the problem statement was reconceptualised as the information behaviour of individuals. Information behaviour is defined as: “the perceptions and actions of individuals towards approaching and handling information “(Davenport1997).

The study could either focus on uncovering the problems causing poor behaviour, or focus on how to cultivate the desired behaviour, more of a positive psychology approach. The author decided to take the approach of positive psychology, mainly because it is anticipated to be a more uplifting experience for eventual participants, as opposed to focusing on problems (Hanson Smart and Mann 2003). A part of positive psychology which helped focus the study is appreciative inquiry, and is discussed in the literature review.

This research approach meant identifying those that exhibit the desired behaviour and understanding what influences them, which could, in turn help cultivate such behaviour. From literature, two types of information sharing were identified; proactive or upon request. It was clear that the kind of information sharing that they lacked in this

organisation was the proactive kind, because they did not necessarily go out of their way to help each other. This led to the development of the research question as articulated below.

Research question:

What are the factors that influence proactive information sharing in organisations?

From the research question, the following aims and objectives followed.

Aims:

To explore in depth, factors that influence proactive information sharing behaviour, and understand the degree to which these factors influence information sharing behaviour.

Objectives:

- Carry out a critical review of the underpinning theories and models relating to information sharing
- Compose and tailor techniques to identify those that share information proactively in organisations
- Identify factors that influence the proactive information sharing individuals
- Critically review the findings
- Evaluate the methods used and make recommendations on how to cultivate information sharing behaviour

Following the review of literature, discussions and interactions with experts in organisational behaviour, it was clear that the social and power factors that influence information behaviour are seldom researched (Niedzwiedzka 2003; Mutshewa 2007 ;Vakkari 2008), so they are given more weight in this study, but the individual aspects and environmental aspects are taken into consideration too, to allow for factors to emerge as the study goes on. The main assumption in undertaking this study is that it is an amalgam

of factors that influences this type of behaviour, and they have not been identified exhaustively.

Original contribution to knowledge:

The development of an understanding of factors which influence proactive information sharing behaviour in organisations; understanding of the relationship between these factors; and the development of tools to identify proactive information sharing behaviour.

Literature Review

Research in IB dates back to the 1930s (Hektor 2001), but the initial studies were all focused on IT (Mutshewa, 2007; Wilson, 2008) and studies in information use did not appear in the literature until the 1980s (Wilson 2008). Davenport's (1997) original definition of information behaviour is how individuals handle and approach information.

Though originating mainly in information studies, there has been an interdisciplinary interest in the discourse and also the use of interdisciplinary methods and theories in studying IB, though the bulk of the work lies in psychology and social sciences (Wilson 1997).

There are several models and theories of information behaviour, one of the most notable is Wilson's (1994) model, which shows the different aspects of information behaviour, and also shows where there has been a scarcity of research. Wilson's model highlights the scarcity of research in information sharing behaviour which this study is focused on.

In previous studies in information sharing behaviour, there has been a focus on understanding the individual, but more recently there has been a shift towards understanding the individual's environment and social factors that affect their information sharing behaviour. Information sharing can be characterised as proactive sharing and upon request (Sonnenwald 2006). It is the proactive type of information sharing that this study is

focused on, and has to do with exhibiting a proactive behaviour with regards to information sharing.

Proactive behaviour in itself is a behavioural construct that has been studied in organisational psychology and management in the past two decades and as in any relatively new discourse, opinions are divided on certain aspects, not least on what behaviour exactly should be termed proactive behaviour. Among several definitions of proactive behaviour is Crant's (2000) definition, which states that; "Proactive behaviour is taking initiative for improving current circumstances or creating new ones". The main concept behind proactive behaviour is bringing about change, any form of behaviour that actively seeks to make any change can be said to be proactive.

There have been various researches linking proactive behaviour to positive outcomes in organisations. On the individual level, proactive behaviour has been linked positively with career management (Ashford and Black 1996), socialising (Morrison 1993). Recent studies have tried to insinuate that proactive behaviour is a result of personal, social and contextual variables, which of these variables is more important in determining proactive behaviour is not fully understood (Crant 2000; Parker, Bindl et al. 2010). Proactive behaviour has also been referred to as goal generation, where the behaviour is a result of an individual trying to achieve a certain goal, motivated by different factors, including cognitive and social factors.

Proactive behaviour is a complex concept, which is dependent on several factors, and leads to various outcomes as well, and researchers like Crant (2000) have called for research methods that can address such complexity by looking at individuals' perception, differences in behaviour, and contextual factors that are antecedents and consequences of proactive behaviour.

Research Method

The study takes a mixed methods approach, using both quantitative and qualitative data, with a constructivist paradigm. The quantitative part of the study is used mainly to get an understanding of the macro factors influencing information sharing in organisations, using

social network analysis of the proactive information sharing network. The qualitative part of the study is used to understand the micro factors influencing information sharing in organisations, using semi-structured questionnaires and interviews with individuals.

Constructivist inquiries seek to understand the entire context of research, both at the macro and micro level. To understand this macro and micro level activities in context, the author took Wilson's (1994) advice and took a multidisciplinary approach to develop the theoretical base. The theories were drawn from the fields of; complexity and systems thinking, information behaviour, positive psychology, and sociology.

The theoretical framework used in this study includes the theory of autopoiesis, social network theory, sense making theory and appreciative inquiry. These theories serve as a lens through which the organisation is viewed and sets the direction for the study, in terms of types of data collection techniques used and the subsequent analysis of the data.

This study is an exploratory study, which seeks to use a mixed methods approach to achieve the research objectives, following the advice of Yin (2003) for conducting exploratory research. The study uses two different organisations, one in the private sector and another in the third sector, to achieve expansion and validation of findings.

This study lies within the band of a fully mixed method, using mixed method typologies, and data is collected and analysed sequentially, using both qualitative and quantitative methods, with the qualitative approach dominant in the study. Therefore, the study, in mixed methods typology, is a **fully mixed sequential dominant** study.

Thesis Outline

The first chapter of this thesis gives an introduction into the origin and background of the research study, and an overview of the research study. Chapter two covers the literature reviews of the two main fields of study, information behaviour and proactive behaviour, to which this study contributes. Chapter three focuses on the author's ethnographic experiences in the first organisation which led to the development of the research objectives. Chapter four focuses on the methodology used in this study, including

discussing the ontological and epistemological stance of the study, the overall research strategy used, including research methods, data collection and validation. The field work is also described in chapter four, including the exit strategy.

Chapter five and six describes the three different cases used in the study, giving an in-depth background into each case, participants, and the researcher's background. Chapter seven begins the first of two cross case analysis chapters, and covers the analysis of each case where data was collected during the study, and takes a more thematic approach to the analysis across all the cases.

Chapter eight presents the emerging themes in the research study, analysing the findings from chapter five, six and seven, with references to existing knowledge in the literature from different fields. The final findings, illustrated in the model of proactive information sharing behaviour are also presented in chapter eight. Chapter nine reflects on the research study as a whole, and evaluates the contribution to knowledge, along with the research strategy used. The limitations of the study and recommendations for future research studies in this field of study are also outlined in chapter nine.

Summary

This research study originated from a manufacturing organisation, where the IT manager wanted to get to the bottom of a lack of information sharing between colleagues. The author became a part of the organisation to help with this problem and took on the role of a researcher as well as a part time job in the organisation. It was during the time the author spent in the organisation that initial reflections and observations led to the development of the research question. This then led to the development of the research aims and objectives.

After an initial literature review, the research was conceptualised into the study of proactive information behaviour, and an original contribution to knowledge was identified. The study focuses on two main bodies of literature; information behaviour and proactive behaviour. Both fields help to understand the concept of proactive information behaviour.

A brief overview of the methodology used in the study shows that the research is carried out using a mixed methods approach, and a constructivist paradigm. The study also uses a theoretical framework, consisting of the following theories; appreciative inquiry, sense making, social network theory, and autopoiesis.

Proactive information behaviour and proactive information sharing behaviour are used interchangeably during this thesis, when referring to the proactive kind of general information behaviour and information sharing behaviour respectively, as proactive information sharing behaviour is a subset of proactive information behaviour.

This study is an exploratory study which uses two different organisations for expansion and validation of findings. This chapter has been an introduction to the thesis, to explain the research background, aim and objectives, methodology used to achieve them, and what to expect for the rest of the thesis. The next chapter gives an in-depth view into the fields of information behaviour and proactive behaviour.

References

- Ashford, S. J. and J. S. Black (1996). "Proactivity During Organizational Entry: The Role of Desire for Control." *Journal of Applied Psychology* 81(2): 199-214.
- Crant, J. M. (2000). "Proactive behavior in organizations." *Journal of Management* 26(3): 435-462.
- Davenport, T. (1997). *Information Ecology*. New York, Oxford University Press.
- Hanson Smart, D. and M. Mann (2003). "Incorporating appreciative inquiry methods to evaluate a youth development program." *New Directions for Evaluation* 2003(100): 63-74.
- Hektor, A. (2001). *What's the use? Internet and information behaviour in everyday life*. Linköping Department of technology and social change, Linköping University.
- Marchand, D. A., W. J. Kettinger, et al. (2001). *Information Orientation: The Link to Business Performance*. New York, Oxford University Press.
- Morgan, G. (2006). *Images of organization*. California, Sage Publications.
- Morrison, E. W. (1993). "Longitudinal Study of the Effects of Information Seeking on Newcomer Socialization." *Journal of Applied Psychology* 78(2): 173-183.
- Mutshewa, A. (2007) A theoretical exploration of information behaviour: a power perspective. *Aslib Proceedings: New Information Perspectives* 59, 249-263
- Niedzwiedzka, B. (2003) Proposed general Model of information behaviour. *Information Research* 9,
- Parker, S. K., U. K. Bindl, et al. (2010) Making Things Happen: A Model of Proactive Motivation. *Journal of Management* 36, 827-856
- Sonnenwald, D. H. (2006). Challenges in sharing information effectively: examples from command and control. *Information Research*. 11.
- Vakkari, P. (2008) Trends and approaches in information behaviour research. *Information Research* 13,
- Wilson, T. (2008). "The information user: past, present and future." *Journal of Information Science* 34(4): 457-464.
- Wilson, T. D. (1994) Information needs and uses: fifty years of progress? . *Information Research: an international electronic journal*
- Wilson, T. D. (1994). Information needs and uses: fifty years of progress? Fifty years of information progress: a *Journal of Documentation* review. E. B.C. Vickery. London, Aslib: 15- 51.
- Wilson, T. D. (1997). "Information behaviour: An interdisciplinary perspective." *Information Processing & Management* 33(4): 551.
- Yin, R. K. (2003). *Case study research: Design and Methods*. Thousand Oaks California, Sage Publications.

2 Literature Review

Introduction

This chapter critically reviews the literature on information behaviour (IB) and proactive behaviour, taken together, the two fields of study can be synergised to help understand proactive information behaviour, and in this particular study, proactive information sharing behaviour. The chapter discusses the different aspects of IB, focus of study and complexity of IB, but first it defines information, and explains why information and IB are important to organisations looking to gain a competitive advantage.

The chapter then explores information sharing behaviour, as the aspect of IB that the study focuses on, discussing points of debates in the different areas of research in IB, the focus on the individual, and the focus on the social environment. There are also discussions of some prominent theories of IB and information sharing in particular. After critically reviewing the literature in IB, the literature on proactive behaviour in organisations is also reviewed, to help understand proactive information sharing behaviour. Past studies on proactive behaviour are outlined, and the types of studies and methods used in studying proactive behaviour are also discussed.

Finally, a gap is identified in the IB literature, which is filled by this study, and given more emphasis by the proactive behaviour literature. The need for more research on proactive information sharing behaviour is highlighted, specifically by the lack of research on the effect of the social context on proactive information sharing behaviour in organisations.

Information Discourse

Information is always discussed alongside data, and knowledge, to give meaning and to put it in context. The Oxford dictionary defines data as a collection of facts or statistics for reference or analysis, and Checkland and Howells (2005) refer to the available data which we know about or pay attention to, as 'capta', from the Latin word capere, meaning 'to take'. Checkland and Howells (2005) also state that having selected some data, it is enriched

by relating it to other phenomena, putting it in context, and seeing it as part of a larger whole, thereby giving it significance.

This attribution of meaning in context converts *capta* into 'information'. Checkland and Howells (2005) emphasise that the act of creating information is a human act, and it is the human being who can attribute meaning to the selected data. This attribution of meaning in context, may be shared by many people, but may also be unique to an individual.

Having given meaning to information, and established that it is a human act to create information by giving meaning to selected data, the next section discusses information in organisations, its importance, various contexts in which it is used in organisations, and the strategies which organisation use to ensure that they make the most of information.

Organisations and Information

In the information age as it has come to be known, the importance of information in our everyday lives and in organisations cannot be overemphasised.

A quote from Davenport (1997) emphasises the importance of information in our present society:

“The point is that the economic value from generating, using and selling information is growing significantly faster than value added by producing traditional goods and services”

Stan Davis 20/20 vision

To further emphasise the importance of information, there are organisations that exist just to share and or sell information. Organisations of this nature are viable, and most of them have become huge corporations; take social networking giant Facebook for instance. Traditional organisations in other sectors have had to improve information flow within their organisation and from outside, in an attempt to maintain a competitive advantage. This increased importance of information has led to the need for organisations to manage information, and this has been an issue of study, by both researchers and practitioners alike.

The literature on information research in organisations outlines several issues that can help improve information usage and management in organisations. Marchand et al (2001) in their study of several organisations looked to develop a framework to effectively evaluate information technology strategies, and Davenport's (1997) survey of managers put people at the centre of the information environment in organisations. From these extensive studies, both researchers, Davenport (1997) and Marchand et al (2001), suggested certain aspects of information management that organisations should improve to enhance their information generation and use:

Information strategy: What information activities an organisation should focus on, and how they will harness this information to meet their objectives. Davenport (1997) stresses that information strategy may also require people to change their behaviour to adapt.

Information politics: Information is affected all the time by politics and power in organisations, and behaviours such as hoarding information or indeed sharing, can be said to be an intention to gain 'information power'(Mutsheva 2007). Mutsheva (2007) also suggests that people behave differently in highly political situations compared to less political situations, and power could be used to induce desirable behaviour in individuals in organisations.

Information management and information technology: These are two of three information capabilities that Marchand et al (2001) stressed organisations need to improve to gain competitive advantage through information. Information management is ensuring that general flow of information is organised and gets to the right people in an organisation, and information technology (IT) involves the resources mainly used to make this happen. They are grouped together here to highlight the importance of the third information capability which is very different from these two. Having the right IT infrastructure in place no doubt improves the use, generation, and distribution of information but, more important are the people who use the system, and their role in information management is discussed next.

Information behaviour and values: This is one aspect of information management which the studies from both Davenport (1997) and Marchand et al (2001) seem to agree on, that IB and values of individuals in organisations are very important, for an organisation to

have any chance of improving its information capabilities (its ability to get the most from the information in and around its people, and use it to improve the organisations effectiveness). Davenport (1997) from his extensive research with managers points out that IB and values are often difficult to manage and it often is not addressed by organisations.

IB is defined by Davenport (1997) as “how individuals approach and handle information”. The term information behaviour does not refer to information or any of its characteristics but rather the behaviour of the individuals when they encounter information.

In terms of IB and values, both sets of researchers, Davenport (1997) and Marchand et al (2001) have different types of behaviours which they suggest should be important to an organisation. Davenport (1997) outlines them to be; sharing, handling overload, and dealing with multiple meanings, while Marchand et al (2001) points out proactive information behaviour (which is simply being proactive with information) and in particular proactive information use to help inform decisions in organisations. Marchand et al (2001) also points out trust, sharing, controlling, transparency, integrity as desired information behaviours that would lead to proactive information use in organisations.

Most of these aspects of information management and behaviour outlined out by Marchand et al (2001) and Davenport (1997) are vital for organisations to gain competitive advantage, although how they lay it out might seem prescriptive, it does shed light on areas which organisations must improve to enhance their information capabilities, and of course, the information strategy which encompasses all of this.

One theme that ran through all the discussions on organisations and information was the need for human behaviour to change or adapt, which is categorised as IB and values. This research focuses on IB and values of individuals in organisations, the factors or combination of factors that affect IB, and how IB in turn influences those factors.

The next section takes a closer look at IB in research literature, and how it has emerged as a discourse.

Information Behaviour Literature

Research in IB dates back to the 1930s (Hektor 2001), but the initial studies were all focused on Information Technology (Mutshewa, 2007; Wilson, 2008). Studies on information use did not appear in the literature until the 1980s (Wilson 2008). There has been much debate about the term “information behaviour”, in terms of its correctness, by strict definition of the component words, it could imply the behaviour of information, and there is no such thing as information actually behaving (Mutshewa, 2007). However, the term information behaviour seems to have stuck and researchers have used it in various ways to mean a type of behaviour, favourable behaviour or even a process of information seeking and use.

Having established that information behaviour is about human behaviour and not information itself, Davenport's (1997) original definition which defines IB as how individuals handle and approach information, would be used for the rest of the study. This encompasses every encounter with information, what the individual's behaviour is, and what the individual goes on to do with this information; all these are referred to as information behaviour. IB encompasses all types of behaviour towards information, it could be seeking or use (which includes processing and sharing), and some researchers like Niedzwiedzka (2003) have discussed passive information encountering, and using a mediator or third party as a type of information behaviour. IB is a term which can be extended and constrained, to mean different types of behaviours, depending on the domain of study. However, the study will focus on IB being mainly about behaviours exhibited during information seeking and use.

Literature on IB has shown that the concept has grown considerably over the years and because of the inherent complexity of studying human behaviour, there is still much debate about what it entails and the factors that influence it (Wilson 1997; Sonnenwald 1999). Though originating mainly in information studies, there has been an interdisciplinary interest in the discourse, and the use of interdisciplinary methods and theories in studying IB, though the bulk of the work lies in psychology and social sciences (Wilson 1997).

Theories / Models of Information Behaviour

One of the most notable theories / models of IB is Wilson's (1994) model which he has since revised (Wilson 1999), and has been further extended by other researchers like Niedzwiedzka (2003). There are other prominent theories / models like Kuhlthau's (1993) search process and Dervin's (1983) sense making. Most of the models in IB cover either information seeking behaviour or information use / sharing behaviour, Wilson's model is a general model of IB which encompasses these different types of behaviour. The next section therefore covers some of the models of IB, with a particular focus on Wilson's (1994) model.

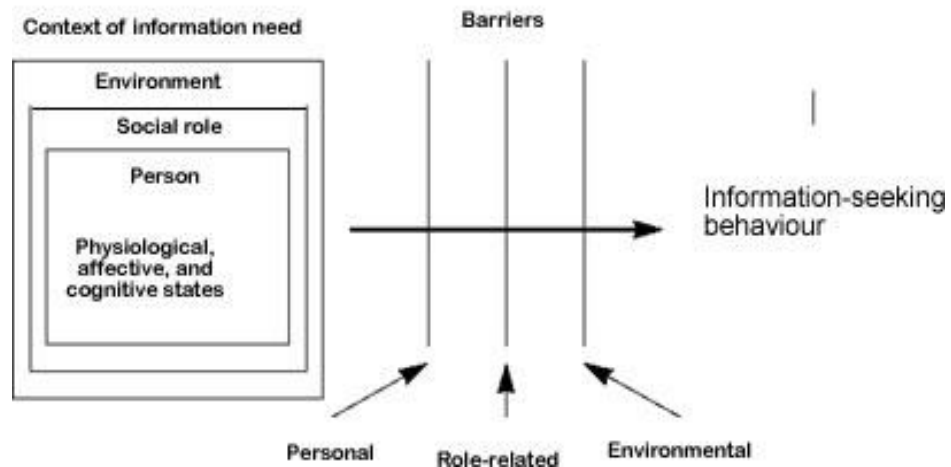


Figure 2.1 Wilson's earlier information seeking model - Adapted from Wilson (1999)

Wilson's earlier model (Figure 2.1) focused on information need and the factors that influence the information needs of the information users, which he identified as psychological, cognitive, or affective. This model points to social and environmental roles of people and how it might affect an individual's information seeking behaviour.

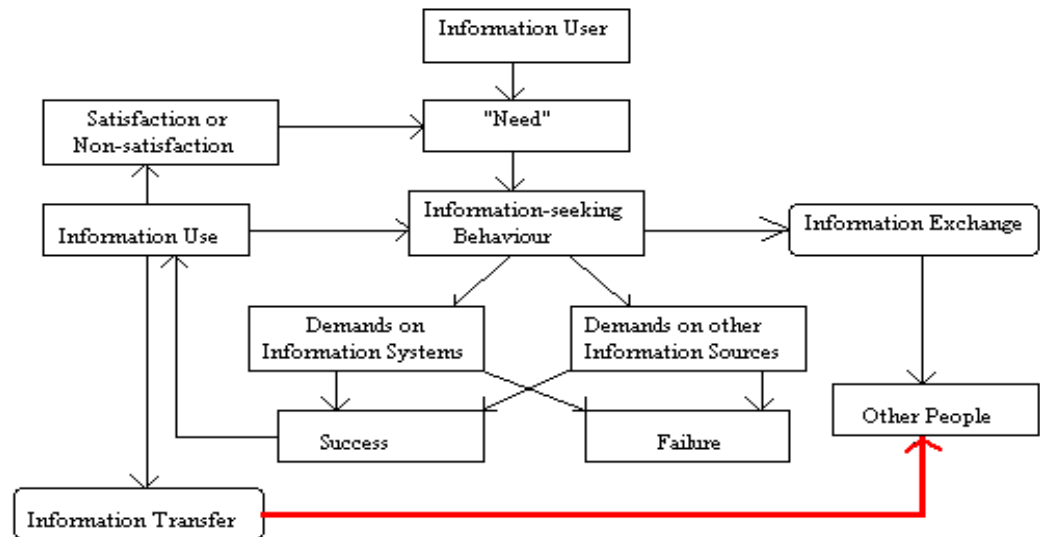


Figure 2.2 Wilson's information seeking model - Adapted from Wilson (1999)

Wilson's initial model was revised to focus on the information user in context and takes into consideration information behaviour as a whole, by looking at information need, information seeking, and information use and sharing. The information user has an information need, and in trying to satisfy this need embarks on information seeking behaviour which might lead to success or failure. The user may also encounter information that might be useful to others and engage in information transfer to other people. It is this highlighted section between 'information use' and 'other people' in Wilson's model in figure 2.2 that this study focuses on.

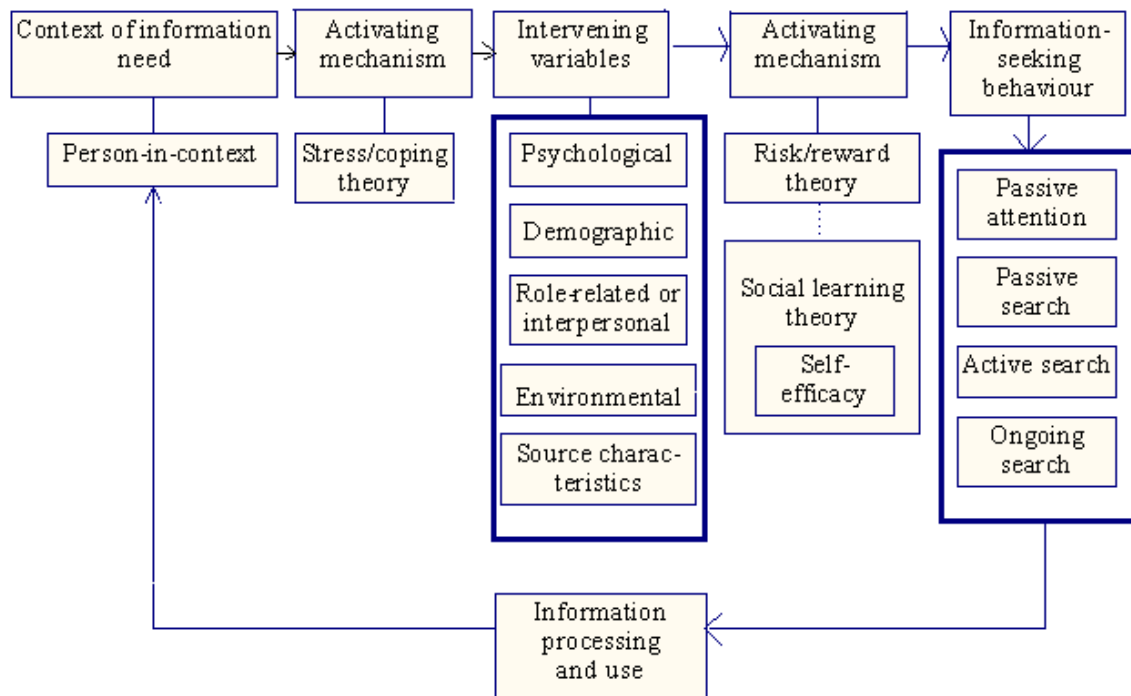


Figure 2.3 Wilson's model of 1996 - adapted from Wilson (1999)

Wilson further revises his model in Figure 2.2 to include intervening variables and activating mechanisms, which can hinder or help the information seeker, and includes theories from other fields, which offer possible explanations for why some information needs may not invoke certain information behaviours. Wilson's revised model does not necessarily give insights to help pursue hypothesis testing, but it highlights the areas of IB that are seldom researched, like information use and sharing. This model in Figure 2.3 explores the use of interdisciplinary methods and theories to explain IB, for example stress / coping theory, as an activating mechanism, is used to explain why individuals might feel the need to seek information, as they may be facing a stressful situation, or attempting to cope with a situation, which both require information. This model does not consider all possible activating mechanisms or intervening variables, but gives a template to use to explore IB in more depth, using interdisciplinary methods and theories.

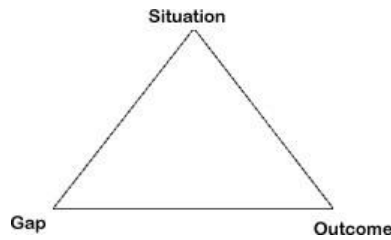


Figure 2.4 Dervin's sense making model (Adapted from Wilson (1999))

Dervin's sense making model is more of a methodology and a way of thinking, or inquiring about the context and factors that influence an individual's IB, than a theory. Figure 2.4 shows a pictorial representation of its basic concepts.

The sense making model employs the concept of a "situation", which the individual finds himself / herself in, typically involving a lack of something (e.g. information), which gives rise to a "gap", and an "outcome", which is the desired outcome of the sense making process, when that "gap" is bridged. The bridge is a means of closing that "Gap". Sense making can also be used as a method, for example it can be used as a framework to guide questioning and interviews to help understand how the individual makes sense of their information environment.

Kuhlthau's (1993) model explores the stages of information seeking which she identifies as initiation, selection, explorations, formulations, collection and presentation. She goes on to identify the affective factors that are associated with the various stages, for example; feeling of uncertainty when there is the need to seek information. Kuhlthau's (1993) model addresses the affective factors affecting information seeking, focusing on individuals and their feelings at the different stages of the information search process.

None of the IB models or information seeking models have considered information use or sharing in any depth, and hence this study is looking to take a holistic perspective on information sharing and identify the factors that influence it. Most of the concepts involved in IB are interwoven, so it is the author's view that discussing the salient points of debate in IB literature would make clear the boundaries in IB concepts and the different approaches to studying IB.

Debates in Information Behavior

From the perusal and in-depth study of the literature on IB, there is often stimulating debate about this discourse; sometimes it might be due to differences in perspective or approach to the research studies, or just researchers trying to develop a shared meaning and understanding of this complex concept of IB.

There are a lot of issues that different researchers raise at different points in time in IB research, but there are some recurring debates, and this, in the author's opinion is good for a relatively young discourse like IB, to help keep up the debate that would lead to a more solid foundation and theoretical base for this field of research. The salient issue that has been subject to debate in IB discourse is the focus of the research study, which refers to the perspectives or the primary factors considered during most of the studies in IB, given the complex nature of IB. Most research studies in IB have been focused in two different ways:

- Aspects of IB under study e.g. information seeking, use (processing, sharing), whole process.
- Factors that influence IB e.g. cognitive, social, context.

The next sections discusses in more depth, some of the debates on the two different areas of focus.

Aspects of Information Behavior Under Study

Most research studies in IB prioritise information seeking (Wilson, 1999; Niedzweka, 2003). Vakkari's (2008) review of IB papers submitted for the ISIC (information seeking in context) conference between 1996 and 2008, found that information use was seldom researched, an issue which was first raised by Wilson (1999) in his second model of IB.

The lack of research on information use, as Wilson (1997) points out, is due to the fact that information use is a concept which exists in the users mind and cannot be observed externally, although one could equally argue that cognitive studies are designed to study

the human mind. It is the author's view that information sharing can be classified under information use and can be observed, and progress can be made towards understanding it better. So the focus of IB studies on information seeking could be researchers trying to build on existing theory when carrying out research, and inadvertently neglecting other aspects with less studies and theories in the process.

Although Wilson (1994) in his second model of IB tried to address IB from a generic viewpoint, as a process involving need, seeking and use; aspects of information use were not given as much in-depth explanation as the information seeking aspects were.

Factors that Influence Information Behavior

To understand IB, researchers need to also understand factors that influence IB. By understanding the factors that influence IB, and connecting IB in turn with these factors, researchers can begin to develop tools to support these desired behaviours (Vakkari 2008). These factors are also subject to the focus of the study; if the study is trying to understand the IB of the individual, it is more likely that results will relate to cognitive factors, but if the focus is shifted to the social environment of the individual, the study is more likely to come up with social and environmental factors that affect IB.

Before there can be any prescriptions as to how to foster favourable IB, if this is the desired outcome, the antecedents and possible consequences of IB need to be well understood for various aspects of IB. Initial studies in IB were focused on the cognitive aspects of the individual, and this style of research focused mainly on the individual's choices in seeking information (Niedzwiedzka 2003). The work done on the cognitive aspect of IB has formed majority of the theoretical base that have been developed so far in IB (Niedzwiedzka 2003).

In the 1990s however, there was a rise in the number of researchers that believed the individual should not be studied out of context as his / her surroundings play a huge part in their IB (Niedzwiedzka 2003; Vakkari 2008). There are more researchers that go on to use concepts like information culture (Choo 2007), environmental factors like: type of

organisations and economic conditions (Niedzwiedzka 2003), power (Mutshewa 2007), as factors that influence IB.

There is also not a consensus as to what the context entails in IB research, for example Niedzwiedzka (2003) refers to context as including the individual, although she acknowledged it is a matter of definition, Sonnenwald (1999) refers to context as external circumstances, and Schultz-Jones (2009) refers to context as a mixture of both. For the purpose of this study, context would be referred to as those external circumstances that an individual is immersed in e.g. environment, social relations etc. Some authors like Courtright and Cronin (2007) refer to systems as part of the context too.

Figure 2.5 gives a pictorial description of individuals and their social networks. Sonnenwald (1999), also suggests that situations exist inside a context, but it has not been the focus of any research studies in IB, the focus of most IB studies are the individual and context. More recently research in IB has given more consideration to context, and in most cases the social context (Schultz-Jones 2009).

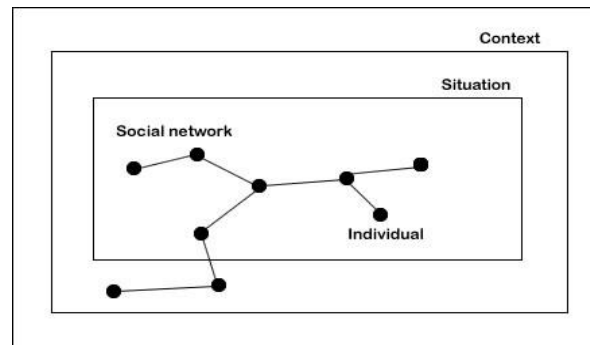


Figure 2.5 Simple case of a given network within a situation and context
Adapted from Sonnenwald (1999)

Allen (1996) points out other perspectives like the socio-cognitive which focuses on how the social environment influences learning in the individual. The difference between this and the purely social approach would be that the cognition is taken into account alongside the social, leading to a mixed approach.

Understanding the right factors that influence IB or the mix of factors is fundamental to understanding IB as has been highlighted, but Vakkari (2008) in his review of papers, pointed out that the number of papers that seek to explain these factors have fallen and more descriptive research has been taken up in IB, thereby not drawing strong links between the factors and IB.

Research on the effect of the social environment on IB has proliferated the literature recently, but few theories on how it affects IB have been developed, aside from the recurrent factors that have also been researched in other fields like, trust (Marchand, Kettinger et al. 2001), and power relations (Mutshewa 2007). Leading researchers in information studies like Sonnenwald (1999) and Vakkari (2008) have strongly suggested that finding the right mix between studying the context and the individual would lead to a better understanding of IB, and the author concurs with this view.

Information Sharing Behaviour

During the review of IB literature it has been highlighted that information sharing is seldom researched. However, there have been a few studies on information sharing, with little or no theoretical basis, mainly empirical findings, which have not been carried further into other studies, for in-depth theory development. Unlike information seeking, where most of the research focuses on individuals' seeking behaviour (Nancy Sadler Baldwin 1997; Wilson 1997; Huotari and Chatman 2001; Case 2002; Julien and Michels 2004; Courtright and Cronin 2007), research on information sharing, has been more focused on organisational settings (Barua and Ravindran 1996; Sonnenwald 2006; Barua, Ravindran et al. 2007; Goh and Hooper 2009). Information sharing has also been researched mainly by practitioners (Davenport 1997; Marchand, Kettinger et al. 2001), and explains, to some extent, why there has been no in-depth studies, perhaps just studies to bring about immediate results for organisations.

There are few researchers, who have carried out in-depth studies in information sharing (Erdelez 1997; Talja 2002; Rioux 2005; Talja and Hansen 2006). Erdelez' (1997) and Rioux's (2005) studies led to the development of the theory of information encountering and information acquiring and sharing respectively. Information encountering is the notion

of an individual coming across information that might be useful to others, while on information seeking activities of their own. While information acquiring and sharing is about what happens after you encounter the information. Rioux (2005) goes on to describe how individual's store others information needs subconsciously, and the affective states that individuals are in, when they go through this process. These studies were mostly conducted online.

There have been studies that have followed from Rioux's (2005) studies, to coin terms like information broker (Marshall and Bly 2004), in the study of digital library users. While Twidale, Nichols et al. (1997) used the term serendipitous altruism, to give meaning to the willingness of colleagues to assist others in information seeking, again these studies were conducted online.

Information sharing can be characterised in two ways; proactive sharing and upon request (Sonnenwald 2006). It is the proactive type of information sharing that this study is focused on, and proactive behaviour literature will be discussed later in the chapter.

Methods Used in Information Sharing Research

The methods that have been used to study information sharing, unlike seeking, have been more varied. The studies in organisations that lean towards practice (Davenport 1997; Marchand, Kettinger et al. 2001) have mostly been quantitative, with the use of different statistical models and analytical tools, to look at antecedents and consequences of information sharing in organisations. On the other hand, the more research based studies, like Marshall and Bly's (2004) study and Sonnenwald's (2006) study, used qualitative interviews to elicit information. None of these studies, as pointed out earlier, have tried to build upon previous studies or carried out a long term study. This could be attributed to the fact that there is no strong theoretical base, and researchers chose to use different settings to gain more insight into information sharing.

Factors that Influence Information Sharing

From the studies that have been carried out on information sharing behaviour, certain challenges have been identified. In knowledge management, a lack of top management support (Figallo and Rhine 2002), and a lack of trust (Pan and Scarbrough 1999), have been highlighted as factors that affect information sharing behaviour. In information sharing, factors like organisational and conflicting objectives (Barua, Ravindran et al. 2007) have also been mentioned.

The factors that have been given the most attention are, the lack of trust, and the culture of the organisation. These two issues would require a whole literature review and affect information sharing in different ways. Trust affects the relationship between colleagues and hence affects information on a micro level. Culture on the other hand, also affects relationships between colleagues, but does so indirectly, from a global level. While these factors have been identified, there has been no apparent link made between the different factors and the way they may together, influence the information sharing behaviour of individuals in organisations.

As with information seeking research, researchers have also tried to understand information sharing solely from the perspective of the individual (Rioux 2005; Sonnenwald 2006). However, there has also been similar clamour, even more so in information sharing, about the importance of understanding the social links, as well as the environment, in which the information sharing behaviour is being studied. Haythornthwaite and Wellman (1998) criticise the individualistic views and suggest that information behaviour, albeit that of scholars, is influenced hugely by the nature of the social networks they are involved in. Wilson (2006) also suggested that it is best to study information behaviour in the context of the individuals' work and social life, in order to gain a better understanding of the phenomenon.

Gap in Information Behaviour Literature

Having established that this study focuses on proactive information sharing behaviour, it is pertinent to outline the information behaviour hierarchy, from “information discourse” down to “proactive information sharing behaviour”, and in the process, identify the gaps in literature which have led to this study.

Figure 2.6 depicts the information behaviour hierarchy for this study, with “information discourse” at the top, which highlights the importance of information in organisations. In discussing the information capabilities that organisations should possess to make the best use of information, “information behaviour and values” (referred to simply as information behaviour (IB) in this study) was identified as a very important information capability for organisations to have, and one which is seldom focused on.

In IB research there are two major debates around the focus of the research study, which could be regarding the “aspects of IB being studied”, or the “factors influencing IB”. Initial studies in IB focused on “individual” and cognitive factors influencing IB, while researchers have recently begun to clamour for more studies to also focus on the “social and environmental” factors that influence IB. IB research can also be focused based on the aspect of IB being studied, this could be “information seeking” or “information sharing” and use. Most studies in IB have been focused on information seeking, and there a number of models and theories in information seeking. However, research in information sharing behaviour have been fewer, hence information sharing behaviour has fewer developed theories and frameworks.

Information sharing behaviour can either be “proactive information sharing behaviour” or “information sharing behaviour upon request”, and the latter is the main type of information sharing behaviour studied in the literature. Proactive information sharing behaviour has only been mentioned in IB research, and there are no research studies focused solely on understanding proactive information sharing behaviour. For this reason, research into proactive information sharing behaviour will need to draw from the more main stream behaviour literature - proactive behaviour, and attempt to create a synergy by merging the concepts with information sharing behaviour.

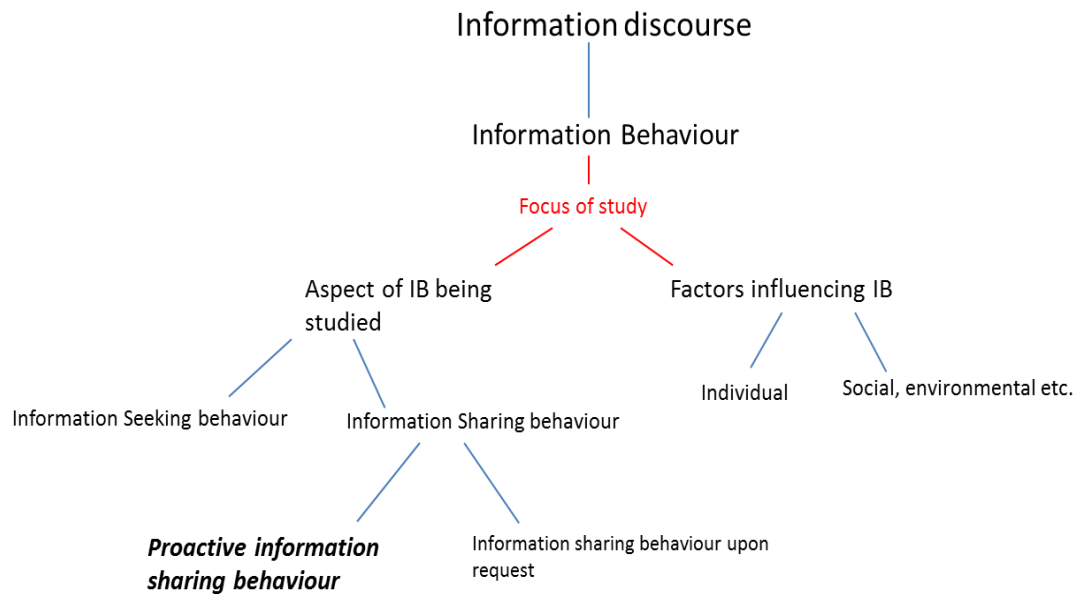


Figure 2.6 Proactive information sharing behaviour hierarchy

Figure 2.6 illustrates several gaps in the IB literature; lack of focus on the social and environmental factors that influence IB, fewer research studies into information sharing behaviour, and within information sharing behaviour, little mention of proactive information sharing behaviour.

Taking these gaps into account, this study focuses on trying to understand the information sharer in their organisational and social context, and also seeks to understand how these factors influence their proactive information sharing behaviour.

Proactive Behaviour Literature

Having discussed the different types of information sharing behaviour, upon request and proactive sharing, this section discusses in more detail, general proactive behaviour in organisations to help understand the proactive type of information sharing behaviour.

Past studies on proactive behaviour are outlined, and the types of studies and methods used in studying proactive behaviour are also discussed.

Proactive behaviour is explained further using the concept of goal generation and the different motivational states that lead to generating and achieving those goals.

Finally the need for more research on proactive behaviour is highlighted by the lack of research on the effects of the social context on proactive behaviour in organisations.

Past Research in Proactive Behaviour

Proactive behaviour is a behavioural construct that has been studied in organisational psychology and management over the past two decades and as in any relatively new discourse, opinions are divided on certain aspects, not least on what behaviour exactly should be termed proactive behaviour.

“Proactive behaviour is taking initiative for improving current circumstances or creating new ones” (Crant 2000). “Proactivity is not a set of behaviours, but a process which involves anticipating, planning and striving to have an impact on the environment” (Grant and Ashford 2008). “Proactive behaviour is a relatively stable tendency to effect environmental change” (Bateman and Crant 1993).

These are some of the quotes on the definition of proactive behaviour, from leading researchers in the field. While there is no consensus on proactive behaviour being a type or set of behaviours, or a process that can be learned as seems to be the case in IB too, the main theme is that proactive behaviour seeks to affect a kind of change in the environment. Another aspect of proactive behaviour that researchers are in agreement on is that it is done actively. Parker, Bindl et al. (2010) describes it as self-starting, change oriented, and future focused. For the rest of this study, proactive behaviour will be viewed as mainly active and change oriented.

There have been various research studies linking proactive behaviour to positive outcomes in organisations. On the individual level, proactive behaviour has been linked positively with career management (Ashford and Black 1996), socialising (Morrison 1993), and proactive presidents were regarded by historians to be effective (Deluga 1998).

So there is a reasonable amount of research on the benefits of being proactive for individuals, and also on the benefits of having proactive individuals in organisations (Bateman and Crant 1999). But it is a relatively new discourse in management and organisational behaviour literature, and there is still a lot to do to demonstrate its benefits and establish it as one of the important areas in management literature. There are different types of research studies that have been carried out in proactive behaviour, using various methods, and the next section describes them.

Types of Research and Methods

The initial approach that was taken to study proactive behaviour was associating a proactive personality with people with proactive behaviour (Parker, Bindl et al. 2010). The researchers' assumption was that people with proactive personalities are proactive across different contexts and over time regardless of the situation. With hindsight this idea was flawed, but nonetheless it provided good insight into the cognitive side of 'proactive individuals' as it were.

Bateman and Crant (1993) developed the proactive personality scale, which is a series of questions used to determine if an individual has a proactive personality. And it was tested based on a hypothesis that they came up with, with regards to how a proactive person is supposed to behave. The results showed correlation with the variables postulated in their hypothesis, and the scale has been used and modified by other researchers in this field of study (Seibert, Crant et al. 1999). In a number of studies that followed, proactive personality has been associated with individual job performance (Crant 1995), team performance (Kirkman and Rosen 1999), leadership (Crant and Bateman 2000), and career success (Seibert, Crant et al. 1999), to name a few.

However, studies which focused on proactive personality as the determinant of proactive behaviour were ignoring the context and other possible determinants of proactive behaviour, and this is where the debate about the factors that affect proactive behaviour, and how they do so, came about. This no doubt is similar to the debate in information behaviour. More recent studies seem to agree that proactivity is a goal driven behaviour which is motivated by factors other than personality (Parker, Bindl et al. 2010). Locke

(1991) had earlier argued that using a goal oriented approach to study proactive behaviour could help understand some of its complexities. The next section explores what influences proactive behaviour as research has shown thus far, and discusses goal generation as a concept in more detail.

Factors that Influence Proactive Behaviour

More recent studies have tried to insinuate that proactive behaviour is a result of personal, social and contextual variables, which one of these variable is more important in determining proactive behaviour is not fully understood (Crant 2000; Parker, Bindl et al. 2010). This is mainly due to some of these variables not being fully studied empirically, for example Parker, Bindl et al. (2010) point out that research is still imbalanced when it comes to the role of context in motivating proactive behaviour, while other researchers like Fuller, Marler et al. (2006) have shown that hierarchical positions in organisations influence proactive behaviour.

Crant (2000) also talks about the costs involved in being proactive, for example how people perceive others in the organisation and rewards that are associated with being proactive. So all these factors are hypothesised and, in some cases, empirically proven to influence proactive behaviour and in most of the examples given, proactive behaviour and proactive personality have been used to predict or have been positively associated with positive individuals and organisational outcomes.

Proactivity as Goal Generation

Goal generation, as described by Parker, Bindl et al. (2010) involves envisioning, which involves imagining future outcomes and having mental models of what one might like to achieve. Parker, Bindl et al. (2010) also identified the future states that could be envisaged:

- Proactive person-fit environment: Involves achieving goals to help address the difference between an individual's abilities and those of the internal environment (e.g. actively seeking change in a job to suit ones skills).

- Proactive work behaviour: goals to help change the work environment (e.g. proactive problem solving).
- Proactive strategic behaviour: Taking control and bringing about change to improve organisational strategy and where it fits with its external environment

After envisioning, the next step would be to take action in the direction which you have envisioned, for example, acquiring new skill sets. Having explained goal generation as a concept and a way of viewing proactivity, the next section takes a look at what actually brings about goal generation.

Motivation

Parker, Bindl et al. (2010) give an overview of why other forms of motivation are important, in this quote; “The fact that an individual might pursue proactive goals to achieve one future-oriented outcome but not another shows it is insufficient to focus on personality as the sole motivator of proactive action”.

They also go a step further in identifying different motivational states in their proactive behaviour model:

- ‘Can do’ motivational state: Basically weighing up the feasibility of the action e.g. ‘Can I do this?’
- ‘Reason to’ motivation: Benefits and reasons to take the actions e.g. ‘Do I want to do this?’
- ‘Energised to’ motivational state: Positive affectivity being a motivational factor in being proactive. Research has shown that positive affect has been shown to motivate people to set more challenging goals (Ilies and Judge 2005).

Also in the literature of behaviour, Deci and Ryan (2000) suggested different internal motivators that can drive the proactive goal process like; individuals finding their tasks more enjoyable, a future work self (trying to move up the career ladder), and identifying a goal as personally important based on the value.

Having looked at a few motivational factors, there still might be more, or a combination of motivational factors that actually stimulate proactive behaviour (Parker, Bindl et al. 2010), and the social factors have not been mentioned so far. There are also suggestions that work context influences an individual's motivational state and hence indirectly affects proactive behaviour.

Motivational state seems the most likely factor which influences proactive behaviour, because of concepts like risk and reward theory in Wilson's (1999) model, and the costs of being proactive, but this study continues under the premise that it is in fact a blend of individual factors and social factors that influence proactivity.

Perhaps after all the positive outcomes that have been linked to proactive behaviour, it is pertinent to state at this point that misguided proactivity and a bias for change can be unproductive, and there should be a balance between preserving certain activities and change (Bateman and Crant 1993). Proactive behaviour is not always seen as a yard stick for performance by superiors in organisations, as Chan (2006) found in his study, which draws attention also to the political aspects of being proactive, as others might feel threatened by change which is being effected by another individual's proactive behaviour. So while there is the need to be proactive, there needs to be a balance and decision making that takes various issues into consideration before an individual gets on with being proactive in the organisation. Such is the complexity of proactive behaviour as a behavioural concept.

Need for Further Research

Proactive behaviour is a complex concept, which is dependent on several factors, and leads to various outcomes as well, and researchers like Crant (2000) have called for research methods that can address such complexity by looking at individuals' perceptions, differences and behaviours, and contextual factors that are antecedents and consequences of proactive behaviour.

Parker, Bindl et al. (2010) laid more emphasis on researching social processes that are also antecedents and consequences of proactive behaviour. For example, how colleagues or

superiors might undermine proactive behaviour, and how a change brought about by proactive behaviour is received by colleagues and its further effect on the organisation.

There is a clear need for new methods of studying proactive behaviour, and also a need to focus on the social context as a factor that influences proactive behaviour.

The issues raised and the gaps identified in the IB and proactive behaviour literatures are similar, this does not come as a surprise since both fields are about studying some kind of human behaviour. So far several cognitive factors have been purported to affect both information behaviour and proactive behaviour, and the social factors have been somewhat neglected in both fields.

Understanding proactive behaviour, will help to understand proactive information sharing behaviour, which will basically be individuals exhibiting proactive behaviour with information sharing. Studying behaviour is never straight forward, but by taking into account the individuals' context and using varying methods, as researchers in IB and proactive behaviour have advocated, the complexity can be understood better.

Summary

This chapter began by explaining why information and IB are important in organisations, using research from Davenport and Marchand. IB and values was identified as one of the five priorities to help organisations gain competitive advantage, through the use of information. Wilson's models were used to illustrate a lack of research in information use, and the need for an interdisciplinary study in information behaviour. The complex nature of IB was also explored, with the help of studies from researchers in the field. This complexity manifests itself in the debate between researchers in IB, about the focus of research studies, like information seeking or information use, and the focus on the individual, or the focus on the social environment.

The dearth of research in information sharing and lack of focus on the social context was also identified, and some theories of information sharing like; information encountering, information sharing and acquiring, and information broker, were discussed to give an understanding of information sharing research. Research on information sharing seems to

be carried out more in organisational settings, with the use of quantitative methods, while studies in information seeking have been focused mostly on the individual and have been carried out using mainly qualitative methods.

The literature of proactive behaviour was then reviewed to understand proactive behaviour as a type of behaviour that is beneficial in organisations when exhibited in moderation. The chapter then discussed how proactive behaviour has been studied in the past, when there has been a focus on the individual, without an understanding of their surroundings. The review found that there is a link between having a proactive personality and proactive behaviour.

Proactive behaviour is expressed as goal generation and the willingness to act to achieve those goals. The motivations behind these goals are also discussed along with the different motivational states; 'can do' motivational state, 'reason to' motivation, and 'energised to' motivational state. Some factors that influence proactive behaviour are explained, like hierarchical positions in organisations, the need for further research is also expressed as there is limited research into the effects of the social environment in organisations on proactive behaviour.

Finally, a gap in knowledge was identified in the IB literature, which this study is looking to address, and also theories, models, and methods were also identified to help achieve this. The review of the proactive behaviour literature identified that, similar to information behaviour, there has been a focus on understanding the individual, without considering the effects of their surroundings. Proactive behaviour and information behaviour are similarly complex, perhaps because they are both trying to understand human behaviour, and researchers in both fields have identified, studying the individual in context, with interdisciplinary methods, as a way to gain more understanding.

It is in the bid to unearth the social processes that influence proactive information sharing behaviour that a theoretical framework was developed to help serve as a lens to study this behaviour organisations. The theoretical framework is discussed, along with the research methodology, in chapter four, but first the ethnographic influences which led to the development of the research objectives are examined in detail in the next chapter.

References

- Allen, B. L. (1996). *Toward a User-Centered Approach to Information Systems* San Diego, California, Academic Press.
- Ashford, S. J. and J. S. Black (1996). "Proactivity During Organizational Entry: The Role of Desire for Control." *Journal of Applied Psychology* 81(2): 199-214.
- Barua, A. and S. Ravindran (1996). "Reengineering information sharing behaviour in organizations." *Journal of Information Technology* 11: 261-272.
- Barua, A., S. Ravindran, et al. (2007). "Enabling information sharing within organizations." *Information Technology and Management* 8(1): 31-45.
- Bateman, T. S. and J. M. Crant (1999). "Proactive behavior: Meaning, impact, recommendations." *Business Horizons* 42(3): 63-70.
- Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." *Journal of Organizational Behavior* 14(2): 103-118.
- Case, D. (2002). *Looking for information: A survey on research on information seeking, needs, and behaviour* New York, Academic Press.
- Chan, D. (2006). "Interactive Effects of Situational Judgment Effectiveness and Proactive Personality on Work Perceptions and Work Outcomes." *Journal of Applied Psychology* 91(2): 475-481.
- Checkland, P. and Howells, S. (2005): *Data, Capta, Information and Knowledge in Introducing Information Management, the Business Approach*, ed: M. Hinton, Elsevier, Butterworth Heinemann, London.
- Choo, C. W. (2007) *Information seeking in organizations: epistemic contexts and contests*. *Information Research* 12,
- Courtright, C. and B. Cronin (2007). Context in information behavior research. *Annual Review of Information Science and Technology, Information Today, Inc.* 41: 273-306.
- Crant, J. M. (1995) The Proactive Personality Scale and objective job performance among real estate agents. *Journal of applied psychology* 80, 532-537
- Crant, J. M. (2000). "Proactive behavior in organizations." *Journal of Management* 26(3): 435-462.
- Crant, J. M. and T. S. Bateman (2000). "Charismatic leadership viewed from above: the impact of proactive personality." *Journal of Organizational Behavior* 21(1): 63-75.
- Davenport, T. (1997). *Information Ecology*. New York, Oxford University Press.
- Deci, E. L. and R. M. Ryan (2000). "The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior." *Psychological Inquiry: An International Journal for the Advancement of Psychological Theory* 11(4): 227 - 268.
- Deluga, R. J. (1998). "American presidential proactivity, charismatic leadership, and rated performance." *The Leadership Quarterly* 9(3): 265-291.

- Dervin, B. (1983). An overview of sense-making research: concepts, methods, and results to date. International Communication Association annual meeting.
- Erdelez, S. (1997). Information encountering: a conceptual framework for accidental information discovery. Proceedings of an international conference on Information seeking in context. Tampere, Finland, Taylor Graham Publishing.
- Figallo, C. and N. Rhine (2002). Building the Knowledge Management Network. New York, Wiley Technology Publishing.
- Fuller, J. B., L. E. Marler, et al. (2006). "Promoting felt responsibility for constructive change and proactive behavior: exploring aspects of an elaborated model of work design." *Journal of Organizational Behavior* 27(8): 1089-1120.
- Goh, C. H. T. and V. Hooper (2009). "Knowledge and information sharing in a closed information environment." *Journal of Knowledge Management* 13(2): 21-34.
- Grant, A. M. and S. J. Ashford (2008). "The dynamics of proactivity at work." *Research in Organizational Behavior* 28: 3-34.
- Haythornthwaite, C. and B. Wellman (1998). "Work, friendship, and media use for information exchange in a networked organization." *Journal of the American Society for Information Science* 49(12): 1101-1114.
- Hektor, A. (2001). What's the use? Internet and information behaviour in everyday life. Linköping Department of technology and social change, Linköping University.
- Huotari, M.-L. and E. Chatman (2001). "Using everyday life information seeking to explain organizational behavior." *Library & Information Science Research* 23(4): 351-366.
- Ilies, R. and R. A. Judge (2005). "Goal regulation across time: The effects of feedback and affect." *Journal of Applied Psychology* 90(3): 453-467.
- Julien, H. and D. Michels (2004). "Intra-individual information behaviour in daily life." *Information Processing & Management* 40(3): 547.
- Kirkman, B. L. and B. Rosen (1999). "Beyond Self-Management: Antecedents and Consequences of Team Empowerment." *The Academy of Management Journal* 42(1): The Academy of Management Journal, Vol. 42, No. 41. (1999), pp. 1958-1974.
- Kuhlthau, C. C. (1993). Seeking Meaning. Greenwich, Connecticut, Ablex publishing co.
- Locke, E. A. (1991). "The motivation sequence, the motivation hub, and the motivation core." *Organizational Behavior and Human Decision Processes* 50(2): 288-299.
- Marchand, D. A., W. J. Kettinger, et al. (2001). Information Orientation: The Link to Business Performance. New York, Oxford University Press.
- Marshall, C. C. and S. Bly (2004). Sharing encountered information: digital libraries get a social life. 4th ACM/IEEE-CS joint conference on Digital libraries.
- Morrison, E. W. (1993). "Longitudinal Study of the Effects of Information Seeking on Newcomer Socialization." *Journal of Applied Psychology* 78(2): 173-183.

- Mutshewa, A. (2007) A theoretical exploration of information behaviour: a power perspective. *Aslib Proceedings: New Information Perspectives* 59, 249-263
- Nancy Sadler Baldwin, R. E. R. (1997). "Information-seeking behavior of securities analysts: Individual and institutional influences, information sources and channels, and outcomes." *Journal of the American Society for Information Science* 48(8): 674-693.
- Niedzwiedzka, B. (2003) Proposed general Model of information behaviour. *Information Research* 9,
- Pan, S. L. and H. Scarbrough (1999). "Knowledge management in practice: an exploratory case study
" *Technology and Strategic Management*
11(3): 359-374.
- Parker, S. K., U. K. Bindl, et al. (2010) Making Things Happen: A Model of Proactive Motivation. *Journal of Management* 36, 827-856
- Rioux, K. (2005). Information acquiring and sharing. Theories of information behaviour. K. E. Fisher, S. Erdelez and L. McKechnie. USA, Assist Monograph.
- Schultz-Jones, B. (2009) Examining information behavior through social networks: An interdisciplinary review. *Journal of Documentation* 65, 592 - 631
- Seibert, S. E., J. M. Crant, et al. (1999). "Proactive Personality and Career Success." *Journal of Applied Psychology* 84(3): 416-427.
- Sonnenwald, D. H. (1999). Evolving perspectives of human information behaviour: Contexts, situations, social networks and information horizons. Exploring the contexts of information behaviour. T. D. Wilson and D. K. Allen. London England, Taylor Graham: 176-190.
- Sonnenwald, D. H. (2006). Challenges in sharing information effectively: examples from command and control. *Information Research*. 11.
- Talja, S. (2002). "Information sharing in academic communities: Types and levels of collaboration in information seeking and use." *New Review of Information behaviour Research*(3): 43-159.
- Talja, S. and P. Hansen (2006). Information Sharing. *New Directions in Human Information Behavior*. A. Spink and C. Cole, Springer Netherlands. 8: 113-134.
- Twidale, M. B., D. M. Nichols, et al. (1997). "Browsing is a collaborative process." *Information Processing and Management* 33(6): 761-783.
- Vakkari, P. (2008) Trends and approaches in information behaviour research. *Information Research* 13,
- Wilson, T. (2008). "The information user: past, present and future." *Journal of Information Science* 34(4): 457-464.
- Wilson, T. D. (1994) Information needs and uses: fifty years of progress? . *Information Research: an international electronic journal*
- Wilson, T. D. (1997). "Information behaviour: An interdisciplinary perspective." *Information Processing & Management* 33(4): 551.

Wilson, T. D. (1999) Models in information behaviour research. *Journal of Documentation* 55, 249 - 270

Wilson, T. D. (2006). "On user studies and information needs." *Journal of Documentation* 62(6): 658 - 670.

3 Ethnographic Influences on the Construction of Research Objectives

Introduction

This study originated from an organisational setting, initiated by one of the managers in the organisation, who wanted to address a problem statement. Through the author's experiences with the organisation, this initial problem statement was explored and developed further, and a research question was developed, along with research aims and objectives.

This chapter aims to explain the process that the author went through in conceptualising the research question and objectives, and also explains the different experiences, including the author's background and involvement in projects within the organisation, which all influenced the construction of the research objectives.

Researcher Profile and Personal Experience

Background

The author is from Nigeria and attended a very good state school in his native country, for his primary and secondary education. He actively chased his dream of studying abroad, and views his objectives in life as challenges, which he strives to overcome. He is committed to all that he does and believes in maintaining his integrity regardless of what he faces in life. The author believes in constantly developing as a person, as a professional and most of all, in using his abilities to help those who are less privileged.

He is always involved in volunteering activities in and outside the university. He has served as president of the Afro-Caribbean society at Northumbria University, as Ambassador for science and technology, and on the board of trustees of the students union. He has also served as an officer cadet in Her Majesty's army, with the Northumbrian universities officers training corps (NUOTC).

It is sheer curiosity that drives his ambition to know more and get involved with activities, because he is a great believer in learning by doing. He has an immense attention to detail and rigour, always looking for better ways to do things, while ensuring that the underlying reasons have been well thought through.

World View

The author believes that an individual's place of birth, upbringing, family and friends, schools attended, and the wider culture around him or her, all help to shape how the individual sees the world. Just like the earth was thought to be flat many years ago, most people can only see the world from the lenses of their personal experiences, because this is the evidence that they can easily relate to, in this complex world of ours.

However, this view of the world changes as new evidence (mostly experiences) come to light, just like the earth was later discovered to be spherical. While individuals can also relate to others experiences, it is the author's belief that, you are most likely to agree with those experiences that are more similar, and relate to yours. With the development of this shared experiences or understanding, sometimes among large numbers of people, it is sometimes taken to be the 'norm', fact or even truth.

There is an exception to this 'norm', where some individuals' experiences do not tie in with this agreed 'norm', and the author believes this highlights the complexity of the world. Hence in the author's view, knowledge is only an understanding that is garnered at a particular time, about a phenomenon, through individual or shared experiences, and can be subject to change in future, as new evidence again comes to light.

Education

The author has a background in software engineering, having obtained an advanced diploma in software engineering. A software institute opened just close to where he lived at the time. This was a chance to pursue a dream in developing software systems. It took

perseverance to convince his parents that it was worth getting a diploma in software engineering at the time.

There was the added option of getting a B.Sc. from the UK at the end of the program, which was another dream for the author. At the end of the program he had developed deep knowledge of systems development, project management, research skills, and systems architecture.

These were all very vital when the time came to study for a B.Sc. in Applied Computing at Northumbria university in Newcastle. He eventually graduated with first class honours, and was recommended to do a PhD by his then supervisor, which he took up, after consulting with his family.

Work Experience

The author previously set up a software development company, between receiving the advanced diploma and coming to the UK to study. It was a relatively successful business, with a few of his friends, they were able to get a few contracts and get the company going, but it had to come to a halt when studying in the UK beckoned.

On arriving in the UK, after a few months, the author took up a part time role as a field representative for a marketing arm of a huge mobile phone retailer. This was good experience and helped with integration into the UK society, as some of the marketing was done door to door.

When the author decided to do a PhD, the organisation where the initial problem originated from, offered some software development work and process reengineering, in order to stay closer to the problem, while the study went on. Since then the author has been involved in several projects with the organisation, with breaks in between sometimes.

By the time of writing up this thesis, the author had secured a role on a leadership development program with one of the biggest banks in the UK.

Research Interests

Having finished a degree in computing and with a background in software engineering, the author wanted to develop his soft skills and get more involved with user research, which he hoped would complement his technical abilities and experience. This led to the initial interest in the study of information behaviour of individuals in organisation, and has now developed into other areas like; the use of social networks to study information flow, human capital and power relations in organisations. There is also a huge interest now in trying to connect the results from information behaviour studies to the development of systems, to give concrete benefits from user studies, which is often difficult.

Construction of Research Objectives

The research objectives for this study were created based on an initial problem statement, which was explored and led to an initial set of objectives, the objectives were then revised based on the author's experiences within the organisation, and a survey of the literature. The study was initiated because the Information Technology (IT) manager in the organisation wanted to develop an Information System to help improve information sharing within the organisation. After initially exploring that idea, based on our analysis of the situation, the IT manager and the author decided it was best to understand the situation better before embarking on building any systems.

It was decided at the time that it was best for the researcher to spend time in the organisation, in order to understand the problems better. The author's experience with systems development from previous studies and work experiences, helped to make this decision straight forward. A role was created to help maintain existing systems, develop new ones, and also to act as an extra service technician when needed. This started officially in January 2009 and continued until May 2010, by which time the author was able to complete the field study in the organisation.

Because the author was working for the IT department mainly, gaining access for research purposes to other departments other than the IT department was initially handled through

the IT manager. He would recommend a department where he felt there were cases of information sharing problems and refer the author to the manager of that department to have a discussion. During the latter stages of the study, the author began to take the initiative, as he became more comfortable in the organisation, he was able to approach managers of the departments personally.

After initial contact with managers of the department, the research was formalised by informed consent from the managers, and they also signed off on contacting their staff. At the time of collecting data, the managers were again contacted first, and they asked employees who were interested via email, those that showed interest had their email addresses passed on to the author. The author kept a diary at this point, making observations, and also got involved in real projects within the organisation to have a deeper understanding of the organisation and its members. The following sections describe the author's experiences within the organisation using a reflective framework, involvement in projects, observations, and the survey of literature, which all led to the formulation and revision of the research objectives.

Reflective Framework

The author's experiences within the organisation involved being part of actual projects and experiencing colleague behaviours first hand. During this time, the author initially kept a daily reflective diary, and continued with observations, which all helped to formulate objectives and identify the initial line of questioning for the research. To make sense of these experiences, the author made use of a reflective framework to guide the reflection.

Schon (1983) describes two main types of reflection: reflection in action and reflection on action. Reflection on action occurs after the observed or experienced event, and reflection in action takes place during the event. Reflection in action allows the researcher to act and make changes whilst the observation and experiences continue, it is commonly associated with experienced researchers. Reflection on actions is a retrospective action on experiences or practice in order to uncover knowledge, by analysing the information recalled (Fitzgerald, 1994). The author uses reflection on action in this study, by being part of projects and making observations, the experiences are then recalled at the end of the day, analysed and interpreted to help conceptualise the objectives and initial line of questioning.

There are several reflective frameworks that could be used to guide both reflection in action and reflection on action, reflective frameworks like John's (1995) model, Gibbs (1988) framework, and Smyth's (1989) framework. This study makes use of Smyth's framework, as it is more suited to reflection on action; a summary of Smyth's framework is given in table 3.1.

Table 3.1 – Smyth's (1989) reflective framework

Activity	Cues
Describe	What did I do?
Inform (Analysis)	What does this mean?
Confront (Self-awareness)	How did I come to be like this?
Reconstruct (Evaluation and Synthesis)	<p>What do my practices say about my assumptions, values and beliefs?</p> <p>Where did these ideas come from?</p> <p>What social practices are expressed in these ideas?</p> <p>What is it that causes me to maintain my theories</p> <p>What views of power do they embody?</p> <p>Whose interests seem to be served by my practices?</p> <p>What is it that acts to constrain my views of what is possible in my practice?</p>

Smyth's framework allows the researcher to reflect systematically on his/her experiences by first recalling the experiences and observations, analysing the information, influenced by the researcher's worldview, and then interpreting to give meaning to the experiences. The framework then allows the researcher to reflect on the interpretation of these experiences, to understand any underlying meaning, which might not be immediately obvious, by questioning the assumptions and beliefs of the researcher and participants, their social practices, and any power relations that exist in the experiences. Finally the framework allows the researcher to reflect on any constraints that may have allowed the interpretation of the experiences to be different.

These experiences are discussed next, and Smyth's framework is used to reflect upon them to establish the underlying problem with information in the organisation, and in so doing, establishing the research objectives.

Observations

The observations took place informally during the early stages of the field study; the author was still trying to understand the organisational problems, before conceptualising the research problem. The researcher recorded observations through two main methods and they were both reflective. The IT manager who initiated the project suggested that it might appear intrusive to take notes while the author was working with people and observing them. Therefore, most of the author's experiences were written in a diary or a descriptive story of issues surrounding projects he had been part of, both with hindsight. The nature of the author's diary is described next, and the narrative of each project is also presented.

Researcher's Diary

It was an informal diary which started out on a daily basis (On the days the author was present at work in the organisation), then later only when there was something significant to reflect on, it stopped when the first major project began. It was the author's reflection on all that had happened on that particular day, it was personal because real names were used. Below is an excerpt from the diary;

So without further ado I started with the questions, and to my chagrin he answered all questions and was very straight forward about his answers as well. Almost seeming like he trusted me implicitly, and that the answers will not be in anyway traced to his name, and this made me feel more comfortable as I started to joke about the questionnaire being lengthy and that it won't take much longer. At the end of the experience which left me feeling elated rather than the anticipated feeling of being drained afterwards, I felt a sense of mutual trust and understanding was building up.

So he said that all the plans for carrying out interviews and shadowing people that we had planned will be put in hold. Obviously this was devastating to me, but I managed to keep my facial expression normal and told him that I understood his plight. He also made apologies for backing down on something he had promised to do. He also said that they were happy to have me at the company, to carry on with [REDACTED] project.

The diary helped mainly for reflection on the challenges with gaining entry, as this was the stage at which the research study was at the time. It also helped to identify initial pointers to what the actual problem was in the organisation. These excerpts represent two very different times; the first paragraph was when the author carried out initial structured interviews with a manager, and felt elated afterwards. The second paragraph was a more grim time, when it felt like the research might not go ahead, due to some circumstances, but it eventually went on.

Projects Carried Out in the Field

After the initial period in the organisation, settling into the work role, and trying to make sense of the organisation, the author got consent to research two departments, where he was involved with different projects. There were two companywide projects which the researcher was part of as well. These projects led to conceptualising the research problem better, identifying probable factors which influence proactive information sharing, and gaining more understanding of the organisation.

Service Data Capture System

This was the first project the author was privileged to be part of in the organisation. The project was initiated by the manager of the service department, who was new to the organisation. His department is responsible for servicing equipment sold to clients, and this was done by field engineers located in different regions in the country. His problem was that they did not have any way of determining the costs of servicing that was carried out in the field, to balance against their revenue. What the manager wanted was to get the cost of paying the engineers, the expenses they made, and cost of the parts that were used on the

job, to measure against how much the client was charged, so he could determine if they were undercharging clients.

The author was assigned to look into this issue and to come up with the best way to achieve the desired results. The author decided to interview a few people in the department, to better understand what the process of generating a service job and carrying it out entailed. After interviewing the administrators, the manager, and shadowing one of the field engineers during a servicing job, the author and the manager agreed that a data capture system would have to be developed. This was for the engineers to enter data while in the field, and the costs would be computed and generated as reports to the manager.

The system was commissioned and the author was responsible for developing it. After a few months into the project, when it was almost time to test and deploy it, the manager who initiated the project was transferred to another less prominent role, after having an internal problem with his superiors. The new manager had no interest in the system and the time and money that went into the development of the system was essentially wasted.

This project pointed out two major issues; one was the indifference shown towards information sharing in the department, because no one before this manager had considered getting the detailed costs of servicing clients, by getting the information from the field engineers and collating it. Second was how power relations can disrupt development of better information practices or any development for that matter. Though this was not a direct use of power, nevertheless it brought a very good project to a halt and there was no plan for continuity.

This project began to shed light on the fact that though IT systems play an important role in information sharing, the cultures and practices of the people who use them are even more important, because they ensure the proper use of the IT systems.

Project Management System for Research and Development

This was the second major project that the author was involved in, although it was not directly related to information sharing, it helped to understand the culture of the organisation. The project was initiated by the research and development (R&D) department manager. The R&D secretary had been looking to develop what she initially thought was a trivial database, to help her boss keep track of the hours spent by employees on projects. On closer look into the requirements of the project, the author decided that it would require more than just a database, and it would require some kind of software to manipulate the input and report generation of the projects they planned to monitor. This was agreed to by the manager, and the project was commissioned.

The author was on a rolling contract by this time, and because the job was with the R&D department, the R&D manager was responsible for keeping the contract going. The author's contract was coming up for review and at this time, most of the functions of the system had been completed. The R&D manager set up a meeting to discuss progress, with a view to testing the system, the author explained that it would take another two to three months, but the manager decided to extend the author's contract by one month, which in the author's opinion was because he wanted to appear prudent to the hiring department. At the end of the one month, the author handed over the system and installed it on the secretary's computer, without it being tested.

Not too long afterwards, the IT manager received complaints about the system, by this time the author was on another contract on a new project the IT manager had commissioned. After the IT manager heard the full story of what had happened, he was not happy either, and asked the author to help fix the system, but at an extra charge. The author ended up fixing the system, but did not ask for any extra charges out of goodwill, because there was another project on anyway.

The R&D manager's behaviour showed how reluctant people were to go out of their way to help others and would always make sure they are not liable for any negative fallout. Because the author was under his authority at the time, the manager quickly tried to remove that link to him so he would not be seen as generating the extra cost of paying for

the author. He did this by terminating a contract earlier than he should have, despite warnings about detrimental effects to a project he initiated.

The secretary on the other hand, basically did what she was told and never tried to go the extra mile. She required permission to do basically everything and this working dynamic is replicated in many departments across the organisation.

Organisation-wide IT Audit

This was an organisation wide project; some staff from the IT department had to go round the organisation to collect data from every computer on site, to generate reports on the software licences installed on them. This was part of a bigger project, which saw several organisations sign up to a group run by software companies, to ensure that organisations comply with software licensing in their respective organisations.

The author was assigned to this project alongside another of the software technicians in the IT department. The author saw this as an opportunity to see most of the organisation and possibly talk to some people about the research. The author got consent from the IT manager to do this as he went from department to department.

The atmosphere in most departments was really nice and informal, and most people seemed really nice and happy, with people sharing a joke every now and then. However as we made the rounds in the departments, people began to report problems they had with their hardware or software. What was fascinating was that, after fixing a particular problem for someone, another colleague sends in a request later on, that they have the same problem. Even though they are close to each other and the procedure for the first person was fairly simple, they did not inform each other, so we end up having to come back to the same department to solve the same little problem.

The author began to see why the IT manager had the original perception that people did not share information with each other in the organisation. From the experience in this project and other personal experiences, it became clear that the organisation could afford any kind

of software system to aid their daily activities, but the individual and group behaviours in the organisation did little to maximise the use of any of these systems.

On this same project, the author began to notice that some people who share informal relationships tend to help out each other a little more. For example the IT technicians would normally answer a call more favourably when it was someone they felt comfortable with.

Wiki Project

This was the author's final project at the organisation, prior to completing the field study. The project was initiated by the managing director of the organisation and the marketing department. They wanted marketing and sales information to be in a central location where sales and marketing representatives could update it and others out in the field or on site could benefit from the information.

The project owners decided that the author should provide a report on the kind of system that will be used for the project and how it could be implemented, assess various options and give recommendations. After research and analysis on several products the author later came back and suggested that three possible systems could be used; Microsoft SharePoint, Mediawiki (which is owned by the Wikimedia foundation, owners of Wikipedia) and Jamwiki.

The recommendation was that Jamwiki be used to develop the system, because it was more suited to the nature of what they planned to achieve. Microsoft SharePoint would require the organisation to buy the whole package; but all the project actually needed was a small component part. The Mediawiki solution was more suited to large wiki sites and was developed with large projects in mind, so tailoring it for smaller organisations is difficult and is actually advised against by the creators.

The marketing department had a meeting with the managing director to discuss the recommendation in the report and to get approval for the project. The managing director instructed them to use the Mediawiki software for the project; apparently he had heard from a friend, that it was better, so he disregarded the recommendation in the report. The

author initially refused to proceed, but the project had to go on as instructed, so Mediawiki was used, although it posed many difficulties, especially with the security model, it was eventually tailored to a point where it was acceptable.

The author uploaded existing documents into the system and also had to train two colleagues on maintaining and adding more content to the system. Naturally the author was inquisitive about the system and kept asking about its use and if it was making any difference to their work, this was met with vague replies like; all the materials needed have not been uploaded. It eventually emerged that the managing director was about to leave the organisation and the project he had started was about to be dumped, just like the one with the service department.

This project is yet another example of the lack of continuity in the organisation and also the lack of trust that the managing director showed in the abilities of his employees.

From the author's experiences in these projects, the research question was conceptualised, and some initial factors that are deemed to influence information sharing in the organisation were identified.

The service data capture system project and project management system for the R&D department showed that regular employees were not ready to go the extra mile to make things happen, they waited for their boss to tell them what to do and they would just do it. This might be a result of the nature of treatment that they received from their bosses, looking at the example of the wiki project, where the managing director showed little confidence in their abilities. Also looking at the IT audit project and how people did not feel the need to go out of their ways to tell colleagues about similar problems they have had or communicate other issues, it adds to the point that people in the organisation do not do things generally out of their own volition.

The other issue that was raised with these projects was that being active and trying to make things happen in the organisation was *role specific*, as mainly managers were interested in process improvement projects. This might have been due to the fact that others lack the authority, but at least they should be forthcoming with ideas, which was not the case in the author's experience.

Power relation was also a huge issue with most of the projects, except the IT audit. In the service data capture project, the manager was removed due to internal problems he had with his superiors, this led to abandoning a promising project. In the wiki project, the managing director overruled a recommendation made in a report based on unreliable information he got from a friend, which eventually led to problems in implementing the system, and lack of interest in the system by the team. This again led to abandoning another promising project when the managing director was about to leave. The political culture in the organisation was very hierarchical and this played a part in determining employee involvement to a certain extent.

Other factors which emerged during these projects, include: relationship types (formal / informal), wellbeing, trust and continuity. From the IT audit project, the type of relationship was found to play a role in the response times of the technicians. Most people in the organisation seemed nice and happy and relaxed, perhaps this was a factor in determining why people were or were not as active as they are expected to be.

Trust was an issue on the wiki project, which was about not trusting the competence of your subordinates. Continuity was a problem in both the wiki project and the service department project, although this could be viewed as a consequence of the other factors like, power relations and a lack of trust.

These issues led to the conceptualisation of the research problem as poor *proactive information sharing* behaviour, because if requested to share information, individuals in the organisation always tend to do what is required of them, but less so when they have to share information of their own volition. After the initial experiences with the projects, and observations, the research question was developed.

Research question:

What are the factors that influence proactive information sharing in organisations?

From the research question the following research aims and objective were identified.

Initial Objectives

The initial objectives of the research study are outlined below; this was before embarking on the field work.

- Improve understanding of, and enhance, Information handling on the individual level in organisations, with a view to improving the overall usage of information in the organisation, through viewing organisations as complex networks of interactions.
- Develop tools to diagnose and analyse possible causes of poor information sharing and usage in organisations.
- Identify opportunities for improvement of the information sharing and usage and for further learning.
- Develop tools for mapping the information environment in organisations taking into account different levels of complexity

Due to the emergent nature of the study, and as new insights developed, the objectives and methodology were updated accordingly, most of the changes were made after reviewing the IB literature.

Literature Review

The literature review was carried out all through the first phase of the research and it was on-going as the author experienced the organisation first hand and tried to conceptualise the research problem. Most of the literature review was carried out in the information science field, looking specifically at the information behaviour literature. It was not a coincidence that there was a gap in the literature with regards to information sharing behaviour, even more so in organisations. This is an issue that is difficult to tackle, and has been on-going.

Revised Objectives

- Carry out a critical review of the underpinning theories and models relating to information sharing
- Compose and tailor techniques to identify those that share information proactively in organisations
- Identify factors that influence the proactive information sharing individuals
- Critically review the findings
- Evaluate the methods used and make recommendations on how to cultivate information sharing behaviour

The main change from the original objectives was the alignment of the initial problem statement more closely to literature. The original objectives were general and pragmatic, but the modified objectives have taken into account research that has been done in similar fields of study (Wilson 1997; Sonnenwald 1999; Vakkari 2008; Widen-Wulff, Ek et al. 2008), and aligned the study to take advantage of existing research as well as maintaining its originality.

These changes were needed in order to get the research going in the right direction and aligned with existing studies. The research has maintained its main objectives, but has been flexible enough in accommodating new ideas, to ensure that the right results and findings are generated from this study. After establishing the objectives of the study, the researcher carried out a field study in an attempt to achieve the objectives. The field study is described and reflected upon in the next section in this chapter, but the rationale behind the techniques used in the field study is covered in the methodology chapter.

Reflection on Field Study

This section gives a descriptive explanation of how the study in the field was carried out, the obstacles encountered, and how they were dealt with, and other activities that the author was involved in, during his time in the field. The research design emerged,

following an exploratory and constructivist approach (Yin, 2003; Guba and Lincoln, 1988). This was both due to the fact that the research question was conceptualised from the field work, and also the interpretive nature of the research. With the emergent research design, the phases of the research emerged from the preceding stage of the research.

From the start of the study, the overarching strategy had been in place, which was adopting a case study approach, with the first case serving as the main case, because the researcher was to spend most of his time in that organisation. The theoretical framework that was developed also played a huge part in determining the next data collection method, because it decided what type of data, and what to focus on, the department, or the individual.

The second case was planned to either confirm the results, or help with alternative explanations, for the findings from the first case. The data collection methods that were applied in the first case after the research diary and observations, were the same applied in the second case. The same data collection methods and questions were used in both cases, with the exception of some additional questions in the second case, to clarify findings from the first case.

The whole research process was divided into two phases, having discussed the entry into the organisation and the construction of the research objectives in the previous section, the research phases focus on the beginning of the actual collection of data. The first phase was to identify the proactive individuals in the organisation, and to understand the information sharing network in the departments. Also part of the first phase were interviews with the individual participants, to further determine the factors that influence their information sharing behaviour. The second phase of the study was about gaining entry and additional data collection for the second case study in another organisation, which was mainly a replication of the first phase of the study in the first case, because the author did not work or spend as much time in the second organisation (case two).

These phases are explained in detail below, and the changes in objectives that occurred as the research went through the phases of the field study are also discussed.

First Phase

Online Questionnaire and Social Network Analysis in Case One

After the conceptualisation of the research problem and identifying some initial factors that influence proactive information sharing, from observations and reflections from the researcher's experience on various projects, the author identified two departments that were fundamentally different in their set up and function, but were both rich in potential information sharing activities between the employees. The participants from these departments were volunteers, the author made contact with their managers first, requested permission to ask their staff to participate. Most of the staff asked were happy to be part of the study.

This phase of the study was to help understand the structure and the holistic view of the information sharing activities in the department; this was done using social network analysis, which was a direct consequence of the theoretical framework. Social network analysis requires careful planning of the questions and planning of the analysis well before hand. The online questionnaire used had two sections; the first section was about the individual, and the second section about those that share information with them, used for the social network analysis.

The questionnaire took a couple of months to develop, because the author was in collaboration with social psychologists at the university, to ensure that the final questions elicited the right data. There were questions about individuals' demographics, preferences and perception, and questions about proactive personalities, and then the final set of questions were about their social relations.

The questionnaire was sent out to participants in the first department from the first organisation, the data was then analysed, before it was sent out to participants in the second department from the same organisation, with some slight changes to reflect new ideas from the analysis of findings from the first department. Not all the participants answered both sections of the questionnaire; one of the participants partially completed the questionnaire, which is assumed was a mistake. However, the resulting data was enough to

build the social networks of both departments, and do some relational statistical tests on some variables like role, formal / informal relationships, trust, proactivity, and wellbeing.

It is important to note at this point that, as a dominant qualitative study, these statistical tests were carried out to act as a pointer for triangulation, and to help buttress the interpretations of qualitative findings. After this stage of the study, factors influencing proactive information sharing that had strong support in the social network analysis were carried forward from the online questionnaires, others were dropped and a few more added following a further literature survey, which is described briefly in the next section.

Literature Survey

The literature survey was a perusal of literature in sociology, to identify additional factors that influence behaviour in general that could be the focal point of some questions and help to elicit better data. This was important because of the exploratory nature of the study, while the initial factors that have been identified were to be part of the interviews, to make good use of the interview situation, it was important to get more widespread questions.

This survey did just that, by helping to add two or three new lines of questioning that had not been explored earlier. An example of a new line of questioning that was adopted as a result of this survey was the individual's past experiences with colleagues and how it affected their information sharing behaviour.

Interviews

The interviews stage of the study was the final stage in the data collection process for case one in the first organisation. This was a few months after analysing the results of the online questionnaires; this gap was because the author had to attend training for the particular technique to be used for the interviews. The interviewing technique, referred to as the Rickter scale (Hughes, 2010), is similar to the sense making technique of time line interviews, but it is simpler to develop and administer. Sense making was used as a way to elicit information from the individual, in a bid to understand their information sharing

experiences, and this again was a result of the theoretical framework that was developed earlier.

The interviews were carried out in two days, because most of the participants were on busy schedules with their jobs, it was difficult to get them at the author's convenience. Participants from the first and second departments in case one were mixed during the process, so it was difficult to apply findings from one department to the other. However as the interviews went on, the author became more sensitive to the data and could ask better follow up questions to elicit rich data from the participants.

The interview data was analysed using grounded theory coding techniques, to help gain new insight and to ensure that any findings are grounded firmly in the data. Though the nature of the questions were not as open ended as they usually are in grounded theory studies, they elicited rich data, with scenarios used to illustrate their responses. The questions were semi structured and each one was focused on how a particular factor influences their information sharing behaviour.

Second Phase

This phase of the field study was data collection in the second organisation (case two) and it included negotiating access to the organisation, adding some new questions to the interviews to help confirm or refute findings from case one and also to find new insights.

Gaining Entry

The author approached a number of charities and public sector organisations to work with in this study, and with the economic climate not particularly looking good for the third and public sectors, it was difficult to get an organisation to commit to the study. The first organisation that was contacted was a public library, they had initially agreed to a meeting, but decided against taking part, due to low staff morale from low economic activity. A huge charity organisation was contacted next, and they too declined to take part for similar reasons.

Another charity organisation was contacted, this time a medium sized one, but they were not interested because they were also focused on survival and would not be able to justify staff spending time on this research. Finally the author came in contact with a trustee on the board of a small sized charity, and offered to ask the other members of the charity if they would take part. Eventually they all accepted to participate in the study and details of the study, including time commitments and practicalities were agreed via email.

Online Questionnaire and Social Network Analysis in Case Two

The second case study was intended to confirm or refute findings from case one, and also develop new insights or alternative explanations from an environment that is fundamentally different from the first case. The objective was not necessarily to spend a long time in the organisation, because the base interview questions were already developed and the findings from case one would serve as pointers to data collection in the second case.

The author was also more sensitive to the emergent issues as the study developed, which made it easier to elicit rich data from the second case without a lengthy period of involvement. In addition to this, the trustee through whom the author had gained entry to the organisation was on hand to give details about the organisation and any questions that the author needed to ask.

For this reason the data collection process for case two began from the online questionnaires, to understand the organisation's information sharing structure and then the individuals afterwards. The same base questions that were used in case one were used here too, with the exception of two additional open ended questions. The social networks were developed in the same way and the same statistical analyses carried out in case one was done in this case, to check for further support of the results or to refute them.

Interviews in Case Two

At the time of conducting the interviews in the second case, there had been several developments with regards to unanswered questions from case one, and new

developments. The same base questions were once again asked, to give a standard for comparison at later stages, but additional questions were included, to address the new developments and unanswered questions arising from case one. The same interviewing technique was used in the second case too, but the additional questions followed after, using conventional interviewing techniques.

The participants in the second case were more flexible and more accessible, so they were interviewed in two batches. The first group was interviewed and the data analysed, then findings and any developments from that was carried on as additional questions to the second group of participants. This allowed as many emergent issues as possible to be tackled, and also allowed exploration of other possible explanations of how findings influence information sharing behaviour.

Member Check

Member checks were carried out at the end of the data collection and analysis for each case. This was used to improve the validity of the study, by checking the author's interpretation of the findings with the participants. It was also used to send some sort of feedback to the participants, to help them understand the factors that they all have concerns about, with regards to information sharing. The findings were put in abstract form, and not in any detail, but the main points were explained and the participants were asked to send in any comments or objections. This process follows with the constructivist way of carrying out research, by constructing the reality at that point in time for the author and those that participated in the research study.

Exiting the Field

The decision to exit the field was made prior to embarking on the pursuit of a second case study to buttress the findings in the study. There was not going to be a third case, hence the decision to split the second case into two groups, to allow for saturation of categories and alternative interpretations of findings. From the findings, this decision was exonerated, because while there are a few central factors that influence information sharing behaviour regardless of the context, most of the others are both context specific and job specific.

This means that every new case would bring in different factors, because of the difference in the environments, culture and nature of the job, and this would go on if more cases were sought. The central factors will get alternative interpretations, based on the particular case, but most of the interpretations across both cases were similar and this would probably be the case for any additional cases.

The most important reason for not seeking another case to further buttress findings was because of the philosophical stance of the study. In a constructivist study of this nature, the findings are an interpretation of the researcher and participants at that point in time and in that particular context. Although there are some interpretations that cut across cases, there was no attempt made to generalise findings to all cases, only to show that in contexts similar to the cases used in this study, the findings would apply. This, along with the strong influence of context on information sharing behaviour, justified the strategy for exiting the field.

Ethics

As a young researcher in the field, it was imperative that ethics was considered strongly, to ensure that the field work was carried out properly and ethically. As part of the field study, the author got informed consent from the managers in the respective departments where research was carried out, to carry out observations, and interview participants. The author was officially part of the organisation carrying out duties like other employees, and most colleagues knew the author was on a temporary contract while carrying out research, because the author was speaking to people, and had been introduced by the IT manager who commissioned the research project.

All data collected during observations, from online questionnaires, and during interviews, were kept safe and secure on a password protected computer at the university. The online questionnaire had information which was put up as informed consent before the questionnaire could be completed, and all of the participants had to select a tick box to give consent before completing the questionnaire.

Initial interview transcripts and interpretations were shared with participants for checking. Anonymity was ensured during analysis and write up by using aliases. The author endeavoured to make the collection of data from participants trouble free, by using private meeting rooms on site at the company, and ensured that every participant got approval from their direct boss to participate.

This study was subject to an ethics review at the mid-point, and was deemed ethical enough to carry on. The author is aware that the ethical procedures could have been more stringent, especially in dealing with observations, but such are the challenges of being in the field as a researcher. On the balance of the limitations of time, participant availability, and practicality, the ethical issues in this study have been dealt with as best as possible.

Summary

This chapter has described the development and construction of the research question and objectives of this study, and reflected on the author's background, explaining how his upbringing and experiences have influenced his worldview, i.e. is the co-construction of reality, and the development of a shared understanding between individuals. The author's educational background and work experience were also important in this study, because professional knowledge in technology made it easy to gain access to the first organisation and to take part in real life projects which enhanced the ethnographic experience.

The projects which the author was involved in were all described, a service data capture system, a wiki project, and a research and development system. When carrying out these projects the author kept a diary of his observations, and these helped to conceptualise the research question and develop more understanding of the organisation.

The conceptualisation of the objectives was the key part of the chapter, generated from the author's experiences in the organisation, and as the author carried out a literature review during the field study. The initial objectives were revised, taking into account research studies already carried out in similar fields.

The field study was reflected upon to give a holistic picture of the author's experiences. The field study and the research as a whole have had a huge influence on the author as a

person and as a researcher, the author now thinks about the fundamentals of every situation, rather than just accepting it for what it is. The author now questions and analyses problems on a deeper level, almost like thinking on two different levels.

References

- Fitzgerald M (1994), Theories of Reflection for learning IN Reflective Practice in nursing, A Palmer and S Burns (eds). Blackwell Scientific, Oxford.
- Gibbs G (1988), Learning by doing: A guide to teaching and learning methods. Oxford Further Education Unit, Oxford.
- Guba, E. G. and Y. S. Lincoln (1988). Do inquiry paradigms imply inquiry methodologies? Qualitative approaches to evaluation in education: the silent scientific revolution. D. M. Fetterman. London, Praeger: 89-115.
- Hughes, D. (2010) The Rickter Scale: Making a Difference. Available at: <http://www.rickterscale.com/assets/docs/Rickter%20Paper%20Dr%20Deirdre%20Hughes%20Master%202017%20Nov%202010.pdf>
- Johns C (1995), Framing learning through reflection within Carper's fundamental ways of knowing in nursing. Journal of Advanced Nursing 22 226-234
- Schon DA (1983), The Reflective Practitioner. Basic Books, New York.
- Smyth J (1989), Developing and sustaining critical reflection in teacher education. Journal of Teacher Education 40(2) 2-9
- Yin, R. K. (2003). Case study research: Design and Methods. Thousand Oaks Carlifornia, Sage Publications.

4 Methodology

Introduction

This chapter discusses the methodology used to carry out this research study, including the philosophy, the world view of the researcher, and how together, these factors have influenced the approach to study. The chapter further discusses and justifies the theories that make up the theoretical framework used as a lens in designing the research techniques used in the study.

The research methodology is then discussed in more detail, discussing the nature of the field work, data collection and analysis, and the emergent nature of the research design. Finally the validity and reliability of the research study is discussed. The chapter is driven by the research objectives and how they are achieved using the research methodology and research techniques.

Philosophical Stance and Worldview

Some parts of the research community often express disquiet about the need for philosophical discussions or its importance in getting results in research. Paradigms and underpinning philosophies might not be very useful in terms of the practicalities of the research, but it does give direction and helps the researcher to set conceptual boundaries all through the research process. Paradigms are part of research tradition, without which there might not have been the huge progress made in research today. With the author being a person who likes to situate himself with tradition, the following paragraphs delve into the paradigm which this research stems from, the author's world view, and how they affect the chosen methodology.

The ontological and epistemological stance of a study inevitably affects the approach that is used to carry out the research. Deciding on objective or subjective reality and also deciding if individuals perceive this reality differently, all influence the decision of what methodology to use. This study adopts the stance that reality is subjective, with the belief that human experience and cognitive nature allows them to see the world in a certain way.

In research tradition this line of belief would align itself with the Interpretivist / Constructivist philosophy (Walsham, 1995).

The main research paradigms that exist today are positivism, interpretivism, and post-positivism. Positivism is the belief in an objective reality and seeks objective ways to learn about this reality, interpretivism is the belief in multiple constructed realities and seeks to understand them by the subjective views of those involved. Post-positivism, on the other, hand believes in an objective world and seeks to understand it, but takes into account the subjective nature of humans, and tries to consider this in the search for understanding.

Traditionally, positivism has been linked with quantitative research, while interpretivism was linked with qualitative research. There were debates in the academic community regarding qualitative and quantitative research, with both schools of thought, claiming that the other will not deliver the best research results. After the “paradigm wars”, as they are now widely known by the academic community (Datta, 1994), there emerged, what seemed to be a truce by both sides, which is now referred to as multi-strategy (Bryman 2004) and mixed methods (Creswell 2003). The “wars” were based on ontological, epistemological and axiological arguments, between positivists and interpretivists.

Some authors, suggested what is now known as the incompatibility thesis (Smith and Heshusius 1986), that both paradigms and ways of doing research could never work together. However, other researchers were adamant that these two paradigms are compatible (Howe 1988; Reichardt and Rallis 1994), and this was argued, would be under a different paradigm, called pragmatism. From then on, many research studies in social and behavioural science, now use multi methods research, though it is still not as prevalent in information research. In criticism of pragmatism, researchers like Datta (1994) have said that there is no underlying theory to it and it is mainly a “what works approach”.

Although a paradigm is a combination of our ontological and epistemological stance, it should not be the only thing that drives research (Wilson 2003), as there are other factors that drive research, like research objectives, nature of the research and time and resources (Wilson 2003).

This study takes the stance of a constructivist paradigm, which is a more modern movement of interpretivism, and it employs the use of both quantitative and qualitative methods in understanding the phenomena under study. Guba and Lincoln (1988) who both championed the “incompatibility thesis” go on to point out that, at an individual level, it is possible to use both qualitative and quantitative tools and techniques in a constructivist inquiry.

The quantitative part of this study is used mainly to gain an understanding of the macro factors influencing information sharing behaviour in organisations, and the qualitative part is used to understand the micro factors influencing information sharing behaviour in organisations, using semi-structured questionnaires and interviews with participants. The interpretation of data is done from a constructivist perspective, and quantitative analysis is only seen as a co-construction of those involved in generating the data, and is used to help understand their individual constructions.

Research Objectives

Chapter three discussed the ethnographic influences which led to the construction of the research objectives, which were revised and outlined below.

- Carry out a critical review of the underpinning theories and models relating to information sharing
- Compose and tailor techniques to identify those that share information proactively in organisations
- Identify factors that influence the proactive information sharing individuals
- Critically review the findings
- Evaluate the methods used and make recommendations on how to cultivate information sharing behaviour

The first objective is to carry out a literature review of proactive information sharing behaviour. To achieve this, the literature review had to encompass the information behaviour literature, as the parent field of research, then the information sharing behaviour

literature, and proactive behaviour literature, which together make up the proactive information sharing behaviour literature.

The second objective is about tailoring techniques to help answer the research question, and achieve the research objectives. Putting together a theoretical framework from different research fields, helped to determine the research techniques to be used in this study. The third, fourth and fifth objectives are related to identifying the factors which influence proactive information sharing behaviour, from the field study, and critically reviewing these findings and the techniques used to develop the findings.

The research objectives, along with the researcher's worldview and paradigm, all serve as the drivers behind the research methodology used to achieve the research objectives. Constructivism typically lends itself to qualitative studies, and having considered a qualitative methodology, it became apparent that it would not give a holistic picture of proactive information sharing behaviour in organisations.

This is because sharing is an act between two or more individuals, coupled with the organisational context within which proactive information sharing takes place, there is the need to understand the wider context of individuals sharing information, and have a holistic view of the organisation. The paradigm also influences the theoretical framework, which is the lens through which the study is viewed, and determines the approach and techniques used to carry out the study.

A case study methodology was used in the study, with mixed methods, to give a holistic understanding. The other methodology considered was action research, to help explore the phenomenon under study with the participants, in an iterative manner, but the use of case study was preferred because a case study helps to understand the complexity of cases under study, through investigation in their natural context with a variety of methods (Johansson, 2007). Given that a constructivist approach to research seeks to understand the macro and the micro (Dixon and Banwell 1999) level details, using a case study allows for intensive investigation of the phenomenon under study.

This means researching multiple variables, using multiple sources and types of data, maybe including the use of both quantitative and qualitative data (Yin, 1997). A major difference between the case study and other qualitative methods is the use of a theoretical framework to inform data collection (Eun Jung Lee, 2010).

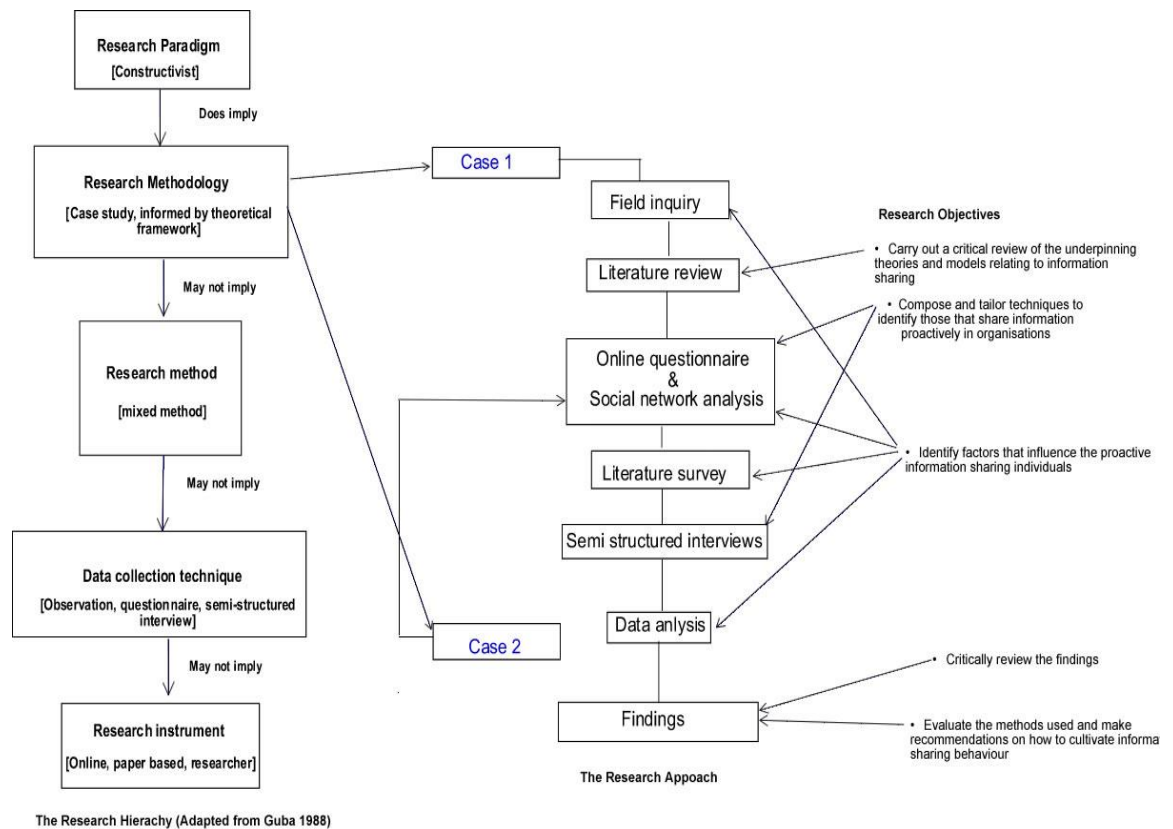


Figure 4.1 The research approach aligned with the hierarchy and objectives

Figure 4.1 depicts the different phases of the field work carried out within each case study. For the first case, all the steps, from field inquiry to the findings, were completed, but with the second case, data was only collected to validate or disprove findings from case one, hence the data collection began from the online questionnaires.

Theories and Perspectives Influencing the Underlying Research Paradigm

Dixon and Banwell (1999) point out that constructivist inquiries seek to understand the entire context of research, both at the macro and micro level. To understand this macro and micro level activities in context, the author took Wilson's (1994) advice and took a multidisciplinary approach to develop the theoretical base. The theories were drawn from the fields of complexity and systems thinking, information behaviour, positive psychology,

and sociology. Below are brief discussions of each theory in the framework, and how they help to inform the study.

Autopoiesis

Autopoiesis is a systems theory that was developed in the natural sciences by Maturana and Varela (1987). The term was coined from the Greek words, “auto” and “poeisis”, meaning “self” and “creation” respectively (Quick 2003). The underlying philosophy and concepts have been applied across fields like, knowledge management (Ishikawa 1999) and Social sciences (Robb 1989).

An autopoietic system, is a network of processes that produce components which continuously generates the process that produced them, through their interaction (Maturana and Varela 1987). As Jackson (2007) found in his attempted application of autopoiesis to knowledge management, and as Mingers (2002) argues, the intrinsic details of autopoietic systems, does not scientifically fit that of a social system.

The basic idea of cyclic self-generation is however applicable to social systems, and Jackson (2007) suggested that autopoiesis be used more as a metaphor as opposed to a scientific fit for social systems, which Mingers (2002) pointed out would require arguments on an ontological level.

The use of autopoiesis in this study is mainly as a metaphor, the study views the organisation as a set of network processes, which helps generate the information behaviour of individuals (the components) and as a result of the interaction of information behaviour of individuals the network processes are generated. This cyclical process is the reason why the next sets of theories used in this theoretical framework are necessary. Social network theories are set of theories that help to understand networks of interaction, and how the emergent network affects the individual components in the network.

Social Networks

Snow and Leach (2005) define networks as a system characterised by complex interconnectedness between its parts, and the study of which addresses the nature of relationships in the system, and not the nature of the actors in it. White (2008) quotes Wasserman and Faust (1999) in their description of a network as a “specific set of linkages among the identified sets of persons or institutions, with the additional property that the characteristics of these linkages as a whole maybe used to interpret social action of the persons or institutions involved”. Social network research studies the members of networks and their social relationships between them from the point of view of each member.

The study of social networks finds its origin in graph theory, and goes as far back as the 1950s, when anthropologists began showing interest in understanding the relational ties between communities, and other social groups (Knox, Savage et al. 2006). It has been applied in a number of fields including sociology and politics (Wey, Blumstein et al. 2008). The study of networks has its theoretical aspects and methodological applications.

Social network theory (SNT) suggests that the implications and patterns of relationships give rise to a specific behaviour. There are only a few prominent SNTs, and they are not used by most social network studies (Schultz-Jones 2009). Brief explanations of two social network theories which are used in research studies, are given below.

Strength of weak ties: This theory postulates that those with whom an individual has weak ties (not directly linked to) within a network are likely to be more helpful in terms of obtaining useful resources and even more influential. Granovetter (1983) who founded the theory suggested that the strengths of a weak tie in networks are a function of three factors: frequency of contact, reciprocity and friendship.

Structural holes: This refers to the concept of identifying gaps in an organisational structure where missing linkages are, and there are opportunities to help understand the behaviour of organisations (Burt 1992).

SNTs are few and far between, but the part of social network study that is widely used is the method of social network analysis (SNA) to understand networks. SNA is not a theory

or a set of theories; it is more of a methodological approach to understanding network structures, through mathematical concepts, which connects nodes in the networks through ties (Knox, Savage and Harvey, 2006; Wey *et al.*, 2008). These network analysis methods have been used for years to understand several types of networks; institutional, animal, virtual, etc. This study focuses on the use of social networks analysis to aid identifying and understanding relationships that have a shared behaviour.

It will not be too far-fetched if it is assumed that all forms of groups are networks, because most things are connected in one way or another, and hence lend themselves very well to be studied as networks of some kind, once the boundaries and focus of the study are identified properly. SNA is used to view and analyse structures and relations that are visible from the resulting network diagrams, but it can also help reveal other abstract factors like tension and influence (White, 2008).

It is safe to allege that in every social group, there are inherent issues rooted inside the relationships between the members, and SNA provides graphical, mathematical, and exploratory ways of unearthing these issues. Networks are mostly represented graphically or by using matrices, the graphical depiction helps to view the network holistically, and to provide insights on how the structure can have an effect on the actors. On the other hand, when they are displayed in matrices, they are mostly used to aid mathematical calculations and other statistical analysis of the network.

There are three major factors that SNA sheds light on during analysis of the network, and they are; position, relationships, and structural patterns. Analysing them together can help to better understand occurrences in the network as a whole, or in the individual actors. Structure and position are similar in that they are physical properties of the network, but they are dissimilar in their significance to the whole and the individual. The position is mostly concerned with the individual and the structure applies to the network as a whole.

Appreciative Inquiry

Appreciative inquiry is a branch of positive psychology that is used as a method of intervention in organisations. Appreciative inquiry focuses on the positive, by using affirmative or positive questions to help focus on solutions rather than problems (Kowalski 2008). It is mainly aligned with the social construction paradigm (Harr and Hosking 2004). It is used in this study to help focus on the positive, as opposed to trying to understand the problems. It looks to understand what works, and ways to promote it, instead of looking at what does not work and ways to fix it. It has been used in this study, to conceptualise the research problem, and instead of studying why information sharing is poor in the organisation, despite all the available infrastructure and technology, the study looks to identify those people or instances where information sharing is good and proactive, with a view to helping to foster it. Appreciative inquiry also influences the techniques used to collect data, because they need to focus on the positive and how to improve.

Sense Making

Sense making is often used in different contexts, it could be used as a theory, a methodology, or even a method (Sovalainen, 2006). It is a way of understanding the users experience, with regards to information, and it was developed by Dervin (1983). It constitutes the use of a metaphor to understand the target domain, which in this case is the user's experience.

In this study, sense making will be referred to as a theory, because it has a philosophical stance, which is constructivist, and its usage as a metaphor implies a certain approach to research method and data collection, it also has an associated method called timeline interviews.

The concept of gap bridging is central to sense making, it is the act of gathering contextual details about a gap (problem situation) and the process that the user goes through to overcome this metaphorical gap. This helps to guide the interview process, and ensures that the most important details of the participant's experience are elicited. The output is a rich narrative of the phenomenon under study, including the process of getting from point

‘a’ to ‘b’ and context bound problems. Sense making is used in this study to understand the user’s construction of their information sharing behaviour.

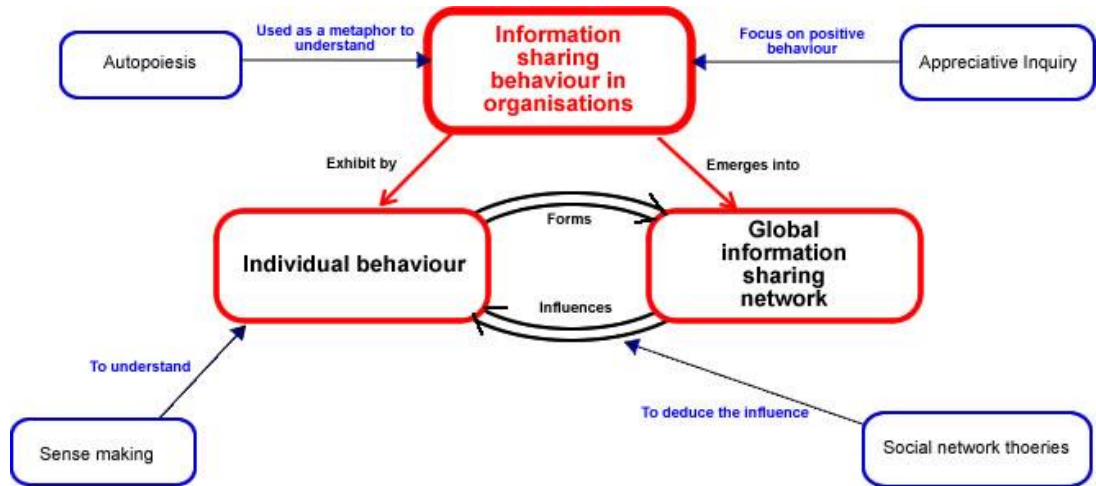


Figure 4.2 Theoretical Framework

Figure 4.2 depicts the theories that make up the theoretical framework in the smaller rounded rectangle; autopoiesis, sense making, social network analysis, and appreciative inquiry. While the phenomenon under study, along with its sub parts, are in the larger rounded rectangles in Figure 4.2. Appreciative inquiry was used in conceptualising the research problem and in giving focus to data collection, while autopoiesis was used to understand the relationship between the individual and global information sharing behaviour in organisations. Social network theories and sense making were employed to help understand the global and individual information sharing behaviour respectively, to help give a holistic view on information sharing behaviour in that particular context.

Having discussed the theories that make up the theoretical framework of the research study, the next section discusses the research methodology, which is the overarching approach that was used to achieve the research objectives, including the research techniques which are influenced by the theoretical framework.

Research Methodology

This study employs the use of ethnographic experiences and mixed methods for data collection within a case study, for expansion and validation of findings. This study is an exploratory study, which seeks to use a mixed methods approach to achieve the research objectives, following the advice of Yin (2003), for conducting exploratory research. Yin (2003) also mentions that using additional cases is always better than using just one, so the study uses three cases, and two different organisations.

Case study methodology bridges the gap between quantitative and qualitative methods in the social sciences (Johansson, 2007). A case study research might be carried out with an interest in a specific case, or with an interest in generalising across cases. Generalisation in case studies can be based on deductive or inductive theory-generation, or conceptualisation (Johansson, 2007). This study uses inductive theory-generation, which is grounded in the context of the cases studied, and is generalised to a certain extent, across both cases, using induction. Inductive case studies are considered similar to grounded theory approaches whereby hypotheses emerge from the data and, therefore, contribute to emerging knowledge and to theory building (Eunjung Lee, 2010).

The study adopts a mixed methods strategy for data collection and analysis, and mixed methods will be discussed in a little more detail.

Mixed Methods

Mixed methods is viewed by its proponents as the third methodological movement (Doyle, Brady et al. 2009; Leech and Onwuegbuzie 2009), and this discussion is not a bid to get involved in a methodological debate, the only objective here is to align this research study with a particular tradition, highlight its strengths, and explain how the study makes up for its weaknesses.

Doyle, Brady et al. (2009) outlined the main purposes of conducting mixed methods research, and they are: triangulation, completeness, offsetting weakness of other paradigms, explanation of findings, hypothesis development and testing. There are other

different reasons for doing mixed methods research, and some of them are discussed using a study carried out by Bryman (2006), which reviews the reasons given for mixed methods research by researchers in literature.

Justification for Using Mixed Research Method

Bryman (2006) stated in his survey of mixed methods research, that there are a number of major reasons which lead researchers to conduct mixed research. He categorised them using Greene, Caracelli et al.'s (1989) earlier classifications:

- Triangulation: This is used as a convergence of results from methods to corroborate findings from each source.
- Complementarity: This was described as using findings from one method, to clarify results from another.
- Development: Using results from one method, to inform the development of the other method.
- Initiation: Trying to discover contradiction and new perspectives by using findings from different methods of data collection.
- Expansion: Seeks to extend the enquiry, by using different data types and methods at different stages of the research.

From Bryman's (2006) analysis, most of the studies gave reasons as 'complementarity', then in second place was 'expansion', then 'development' in third, and 'triangulation' in fourth. In this study, mixed methods is used for the purpose of 'development', and 'complementarity'. The resulting findings from both types of data collection and analysis were used to clarify and gain better understanding of the constructed reality of those involved in the research.

Researchers like Pickard (2007) and Strauss and Corbin (2008) have suggested that research methodology should be influenced by the research question and the researcher's underlying beliefs. The objective is to use both methods of data collection and analysis to enhance the understanding of the author's and research participants' reality, in the cases that are explored in this research.

Mixed methods suggests the use of two different types of data, and how these two types of data are combined, determines, to a certain extent, the outcome of the research, so the data analysis strategies of mixed methods are discussed next.

Mixed Methods and Data Analysis Strategies

In mixed methods research, there is the issue of how to combine both qualitative and quantitative data. Researchers like Caracelli and Greene (1993) have outlined some strategies that are regularly employed to integrate both types of data:

- Data transformation: Transforming one kind of data into the other, to aid analysis, e.g. counting occurrences of codes in qualitative data and using quantitative analysis.
- Typology development: Analysis of one type of data leads to developing a substantive category that is applied in analysing the data from the other source.
- Extreme case analysis: Case identified using one type of data, are chased via more data collection and analysis of the other data, with a view to refinement.
- Data consolidation: here both types of data are joined together into narratives or numerical code for further analysis.

Depending on which data analysis strategy is used, the outcome of the research could be influenced. Typology and data consolidation analysis strategies are used in this study, quantitative data analysis is used to generate substantive categories for the qualitative data analysis, and in describing the findings, both types of data are combined into a narrative.

The compatibility of these different data types, along with a number of other issues have been used by critics to argue against using mixed methods, and some of these critiques are discussed next.

Critique of Mixed Methods

There have been a number of reasons why mixed methods research has been critiqued, the researchers view on some of these issues, and what proponents of mixed methods have argued in defence, are discussed below.

Compatibility: The view that the two paradigms of positivist thinking and interpretivist thinking are being merged to create a mixed methods approach, cannot be justified. When it was that only positivism was widespread, researchers did not think there could be another paradigm at the time. Now interpretivism is here and has taken the other end of the continuum. The view of mixed methods proponents like Doyle, Brady et al. (2009) and Leech and Onwuegbuzie (2009) which the author concurs with, is that mixed methods lies in the middle of this continuum and is not a mixture of approaches but a different philosophical stance on its own, with a different epistemological view.

A 'what works approach': Mertens (2003) argues that research should not be conducted on the sole basis of 'what works', which in a sense is a valid argument. One could equally argue that the emergent nature of qualitative research is based on what is practical when weighing up potential next steps, albeit with a focus on qualitative methods. However, research should also be judged on the usefulness of its outcomes.

Dwells within positivism: Giddings (2006) argues fervently that mixed methods is only serving as a way to bring back positivism to dominate as a research approach. It is not exactly clear how and in what way she means this, but clearly there are different forms of mixed methods as will be shown later, some with more quantitative focus, and others with more qualitative focus, so mixed methods cannot be said to favour one paradigm over the other.

Driven by economic necessity: This perhaps is an area which requires personal experience, in order to have any say, and the author has never been involved in bidding for research funding. Researchers like Giddings (2006) have argued that most mixed methods studies are embarked on in order to secure funding, as most funding bodies in recent times have favoured interdisciplinary studies of this nature. This remains an unknown, and those who have secured funding for research will be in a better position to debate this issue.

Typology of Mixed Methods

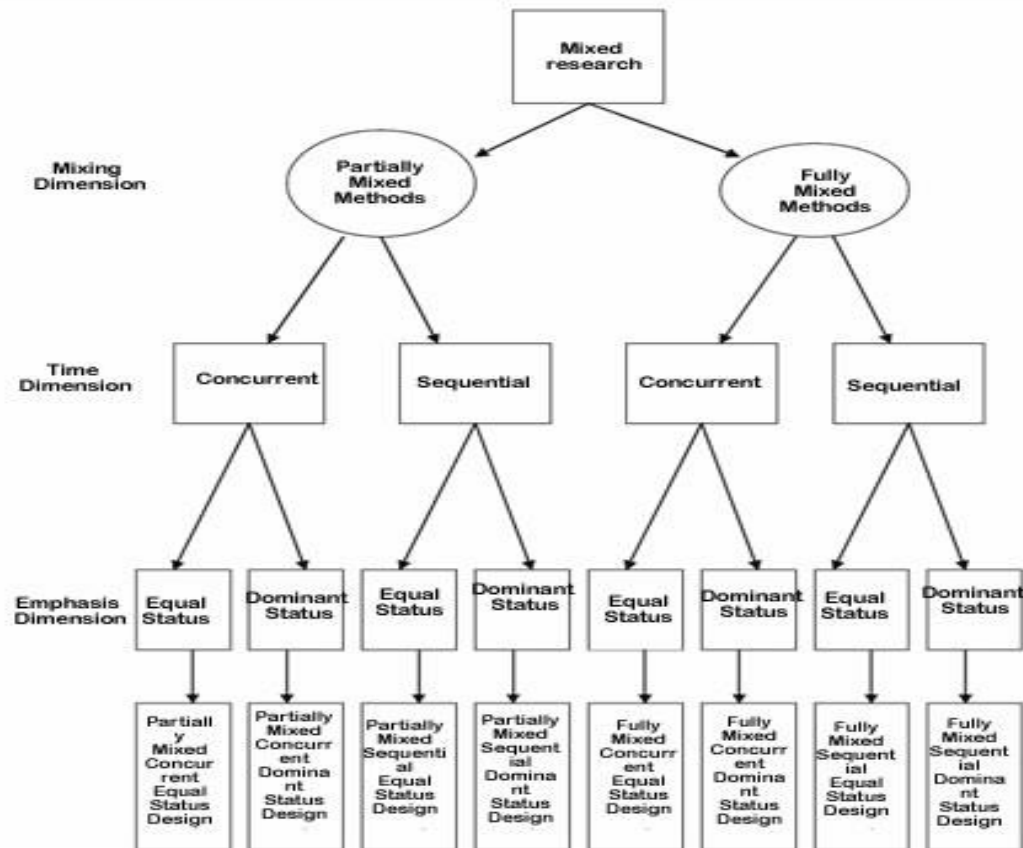


Figure 4.3 Typologies of mixed methods research, adapted from Leech and Onwuegbuzie (2009)

This study uses a predominantly qualitative approach in terms of the emergent nature of the study and also to explain the findings, taking subjectivity into consideration. However, the study contains some quantitative data collection and analysis to check for correlation between certain variables. From Figure 4.3, it is clear that Leech and Onwuegbuzie's (2009) typology is simplistic, but it was used here because it is the one which accommodates this research study properly. By definition in Leech and Onwuegbuzie's (2009) typology, partial mixed methods are those research designs that only use another method in explaining the findings, while a fully mixed method research design employs another method at one or more of the following stages; research objective, type of data, type of analysis and inference.

If a research design applied both methods at the same time it is said to be a concurrent design, and if they are carried out in stages it is referred to as a sequential design. If both qualitative and quantitative methods are giving equal weight in the research, then it is an equal design, while if one is dominant it is a dominant design.

This study lies within the band of a fully mixed method and data is collected and analysed sequentially, using both qualitative and quantitative methods, with the qualitative approach dominant in the study. Therefore the study, according to the typology in Figure 4.3, is under the **fully mixed sequential dominant** status.

Emergent Design

As explained earlier in the chapter, this study follows the constructivist research paradigm which advocates the use of an emergent research design, based on how issues unfold in the research. The general idea was to go into the organisation to understand proactive information sharing individuals through the lens of the theoretical framework.

This required the understanding of the holistic picture of information sharing patterns in the organisation, and also, the individuals that form these interactions. After each stage in the research process, the outcome was used to determine the ‘what’ and the ‘how’ of the next step, keeping in mind the main objective of understanding the organisation and individuals who interact through sharing information proactively within the organisation.

Design of Field Study

The field work encompasses the initial contact with the first organisation, the time spent in the organisation, including data collection, and negotiating the exit from the field. The initial contact and first stages of the field work were planned in advance, but the stages that

followed emerged as the research took shape. The rationale behind the different phases of the field study is described next.

Gaining Entry

One of the main problems facing researchers involved in field work in organisations is the issue of gaining access (Shenton and Hayter 2004). If the research focuses on a topic that is sensitive for the participants in the organisation then it might be even more difficult. Cressey (1988) states that inside accounts provide a better picture of an organisation, which is why in this study, there has been an ethnographic study in one of the cases to ensure that the organisations is well understood from the researchers perspective.

Gaining access requires more than the guidelines in the methodology literature, which suggests that gaining access is due to personal connections (Lofland 2006), and courtesy (Denzin and Lincoln 1994). Although some of these help in gaining access, it is a lot more complicated than that. In this study having a personal connection helped to get ‘one foot’ into the organisation, but even the personal connection could not help create and sustain the necessary relationships to help carry out the study. It was the researcher’s technical skills which proved to be the answer, it allowed the author to be part of actual project teams in the organisation, therefore buying time and gaining trust to carry out the research study.

Gaining access can vary, depending on the organisation being studied. In the first organisation used in this study, it was difficult to get people to give time for interviews, because they were always busy trying to carry out their duties. In the second organisation used it was somewhat easier because it was a non-profit making organisation, but it had its difficulties, because the use of personal connections or a gate keeper was not as effective, the participants had to decide on their own to be part of the study.

Buchanan, Boddy et al. (1988) propose an access model with four stages: getting in, getting on, getting out, and getting back. After gaining access, the researcher needs to negotiate entry into the daily activities of employees. For getting out, it is advised that there should have been a deadline agreed for the closure of the data collection process. In

this study, the deadline was flexible and based on the actual time participants were available for the interviews. Buchanan, Boddy et al. (1988) also suggests that during withdrawal the option to come back for more data collection should be left open, in case it is needed.

Sample

A purposive sample was used in this study, and teams which have individuals with similar roles, and shared aims and objectives were deliberately used. The number of people in the team was not important in the study, of utmost importance was that the team members worked together and shared information together to achieve their shared aims and objectives. For the first case, two separate departments were used in the study, volunteer participants were taken from each department, but most of them in the department took part in the study. In case two, it was a similar situation, but everybody was encouraged to take part in the study.

In every team chosen, there was the intention to ensure that their fundamental way of working differed, in terms of the working environment, team objective, team dynamics etc. The objective of one of the departments in the first organisation is technical in nature, and the team members have technical duties, aided by administrators and a manager. In the second department, the team members have duties which are sometimes conflicting, although they still have to share information for each role to work. The first role is in purchasing products for the organisation and the other is assuring the quality of these products. In the second organisation, the group was made of up a voluntary board of trustees and paid workers, all working together to help achieve the non-profitable goals of the group.

Field Inquiry

After reconceptualising the research question, in the time that followed, the author kept a diary which was descriptive, just like a regular daily diary of activities. From this diary and personal observations, the author identified factors which were possibly influencing

proactive information sharing behaviour, including; general wellbeing, power relations, lack of trust and the nature of the interaction (formal / informal).

The organisation has a canteen which is heavily subsidised, staff could take their holidays anytime of the year and in chunks as long as their manager approved, which they often did. The organisational culture and approach to work life balance, in the author's opinion, made employees generally happy and friendly. There also seemed to be a blame culture, where emails are used almost as a tool to apportion blame, and some individuals who shared informal relationships seemed to help each other more than others.

Literature Review

Some of the factors identified from the field inquiry were also discussed by authors in the literature, like trust and culture. There was limited success in identifying information sharing behaviour theories relating to factors that influence information sharing behaviour, in the literature, and this prompted a review of the literature in other fields, like organisational behaviour.

There is a body of knowledge which looks into proactive behaviour in organisations, and a few factors that influence proactive behaviours were identified; hierarchical position (Fuller, Marler et al. 2006), proactive personality (Bateman and Crant 1993), motivations (Parker, Bindl et al. 2010). These factors were combined with the factors identified during the field enquiry, and used as the basis for the next step in the research process, social network analysis.

Understanding the Whole (Social Network Analysis)

The objective of this phase of the field inquiry was to identify people who share information proactively in organisations, and to have a holistic view of proactive information sharing behaviour in the organisation, before embarking on an in-depth inquiry. Social network analysis was used as a technique to construct and analyse the proactive information sharing network.

The social networks were constructed using data collected from an online questionnaire, participants were asked which colleagues share information with them proactively, in order to identify proactive information sharers. Ensuring that the right colleagues are identified as proactive information sharers, and reducing subjectivity, highlights the need for social network analysis. This means asking questions about an individual from a colleague's perspective, and building visual accounts of this, which might still have some subjectivity to it, but will be validated by two or more colleagues agreeing to the same person as an information sharer.

Social network analysis was carried out using online questionnaires (appendix B), the first part of the questionnaire focuses on background information, motivation for sharing information, culture in the organisation, wellbeing and role. The second part of the questionnaire focused on identifying colleagues who share information with the participants in the department, based on frequency of sharing, proactivity, type of relationship, and trust.

The data was analysed using the social network analysis method, to develop network diagrams and analyse the factors using a relational statistical method, which is different from traditional statistical analysis. The analysis of social networks is not always definite, unlike traditional statistical methods. However, this process of network analysis helped to identify those who share information proactively, and also develop a picture of the overall communication pattern in the network at that point in time in the organisation, which was useful when interpreting the qualitative data from participants' perspective.

Continuous Literature Review

After the social network analysis, there was strong support for the following factors which influence proactive information sharing: role, type of relationship and proactive personality. This prompted a return to the literature, this time a brief survey, to explore if there were more factors in other fields of research that influenced behaviour of any kind.

This was in order to prepare for the final stage of data collection, which was an in depth narrative of the participants account of factors which influence their information sharing

behaviour. From this further literature survey, factors like; cooperation (Coleman 1990), sense of involvement (Kramer, Brewer et al. 1996; Nahapiet and Ghoshal 1998), and past experience (Chen, Boucher et al. 2006), were identified as social factors which influence behaviour in general.

Understanding the Individual (Semi Structured Interviews)

This purpose of this stage of the research was to have an in-depth interview with the participants, to understand the factors identified in a more detail, and to identify new factors in the process. Semi-structured interviews were used, with each question focusing on one of the factors that had been identified thus far in the study.

The interviewing technique used at this stage, is used mainly in social care, it is called the Rickter scale (appendix C), and it helps elicit rich stories in a semi structured interview format. This is in-line with appreciative inquiry, which is one of the theories in the theoretical framework. Rickter scale helps to focus the interview on the how the participants can improve their current situation, and helps the participants to think about these positive scenarios of proactive information behaviour. Participants were asked to rate how much the previously identified factors influence their sharing of information with colleagues; they were then asked to explain what was going through their minds when they chose that rating. This led to stories about events that had occurred before, to help justify the rating.

Participants are then asked if the rating had been lower in the past, and how they have managed to get it up to the current level, which then leads to another story. In some cases participants are then asked about where they would prefer the rating to be, and how they expect to get there, which leads to another story about barriers that could be removed to enable them to improve.

Data collection

Data for this study was collected using three main methods; observation, online questionnaires, and semi-structured interviews. The actual application of each of the data collection methods in the study is elaborated on below.

Observations

This was participant observation carried out by the author, in the natural settings of the participants. These observations were done as the author carried out his role in the organisation, while helping to build systems and taking maintenance calls. It was carried out mainly by writing in a diary whenever there was any significant event, and sometimes just on ordinary days, that might have felt eventful. There were no signposts as a guide of what to look at; it was basically writing the author's experience from time to time at his discretion.

Writing these reflective journals helped the author to identify some of the initial issues that he felt were influencing proactive information sharing behaviour in the organisation. By this time, most people in the departments involved in the study knew there was a research study going on, but because the interaction between the researcher and these individuals occurred in the natural work setting, of either building a system or helping with technical faults, the author was able to capture issues without participants acting differently. This formed the initial basis of the study, which helped to generate the initial objectives.

Online Questionnaires

The aim of the online questionnaires was to collect some statistical data, along with some qualitative and demographic data for the study, as the first step in trying to identify the individuals who share information proactively in the organisation, which is the second objective of the study.

The statistical data collected was to test some of the factors identified during the observation stage of the study. It was used to build a social network matrix and diagram of

the proactive information sharing network in the organisation, which was revised after analysing results in each case.

The statistical data was also used for some exploratory analysis of the social networks that were generated. By using the relational data, social factors like role and types of relationships, were checked for correlation with information sharing. Some qualitative data was collected as open ended questions in the online questionnaire, to collect some initial thoughts from participants, on issues like; the need to improve information sharing in their team. However these open ended questions were later used to supplement the interview data, and they were analysed together. The demographic data was collected to give a rich description of the participants in the study, also to understand if there were any links with their demographics and their information sharing behaviour.

Interviews

The interviews used in the study are semi structured interviews, with each question focusing on the factors identified previously from the observations and online questionnaires. There were some additional open questions addressing issues like motivations and barriers. The full set of interview questions can be found in appendix C.

The interviews were carried out using a technique called the Rickter scale, which is mostly used in social research, to elicit scenarios of participants' experiences. It uses an idea similar to the timeline interviews from the sense making methodology, where participants are questioned about the present, the past, how they got to the present, the future, and how they intend to get there from the present, all centred around proactive information sharing behaviour.

The aim of the interviews was to understand the individuals' experiences of what influenced them to share information proactively with colleagues, which is the third objective of this study.

Rickter Scale

The Rickter scale covers various areas of understanding peoples' perception, including motivation, self-efficacy, and critical reflection (Hughes, 2010). The Rickter scale itself is underpinned by research that involves a multi method approach, which tries to hurdle the limitations of qualitative and quantitative techniques.

On the Rickter scale, a series of semi structured, open ended, questions are asked and the participant rates him / herself on a scale of zero to ten. The researcher then asks them; "what is going through your mind at this point?", that is, when they selected that rating. This elicits a story about a certain situation or scenario that made them rate themselves that way.

Participants are then asked if the rating has been lower or higher than at any time in the past, depending on the nature of the question, and to select a rating to signify a point when it was (or will be) higher or lower. The researcher then asks the participant to return the scale to the original rating, and asks them what has changed from then to now. This further elicits another rich story about a situation or scenario that has led them to where they are at the moment, or that would lead them to where they want to be. Finally the researcher asks what steps participants think might get them there, or have gotten them to where they are now.

These rich stories are good sources of data for inductive analysis, to understand the phenomenon under study. The scores on the ratings can also serve as a reference point for a longitudinal study, when the participant is interviewed again, to demonstrate progress statistically, if needed.

Modes of Recording Data

The media used in recording and storing data were part of the research strategy, and these had to be planned in advance of the field work. A diary, audio recordings, and spread sheets, were used to record data collected during the study.

Diary

The nature of the diary used in the study was unstructured and captured the general experiences of the author at intervals during his time at the organisation. The diary was kept to help the researcher to reflect on his initial experiences in the organisation, and in so doing, identify some initial pointers, as to what the problem was with information sharing in the organisation, and subsequently set the research objectives.

Audio Files

Interviews were recorded using portable recording devices, in some cases the files were transferred to a laptop for transcribing, in other cases; it was transcribed directly from the recording device. The transcribing was done using Nvivo 8, so there was no need to keep additional text files, just the one Nvivo project file.

Spread Sheets

The online questionnaire data was collected and stored in excel spread sheets, with one file containing data about the individual's responses about him / herself, and another containing the relationship data about who the individual identified to be sharing information with them. These files were later exported into a social network analysis software, for analysis.

Data Analysis

Data analysis began while the author was still in the field, and this carried on after the author had exited the field. In this study, there are two data analysis strategies employed, because this is influenced by the underlying reason of conducting a mixed methods research. The underlying reasons for using mixed methods in this study are for complementarity and development. The analysis strategies are typology development and data consolidation.

The analysis of the social network data, lead to the development of categories for collecting qualitative data. However after analysis of the qualitative data, there was data consolidation, where both sets of data were jointly reviewed, in this case, as narratives, which could include further analysis, to construct a clearer picture of the author's views on each organisation.

Analysis of Data from Observation and Reflections

The data from observations and personal experiences of the author during projects in the field was not analysed in any formal way. It was not regarded as a systematic data collection phase, it was meant to help understand the organisation better through experiences and reflection. After reading through the reflections, the main points that were raised were identified.

Analysis of Data from Online Questionnaires

The data gathered from the online questionnaire was analysed using social network analysis. The first section of the questionnaire generated data about the attributes of the participants and second section was used to create ten relational networks of the participants, based on each question. Some of the questions measured similar types of relationships, so those questions which represented similar concepts had their networks merged by using the average of the figures in the matrix, this is explained in appendix E.

Mosindi and Sice (2011) define some of the terms used in social network analysis in detail, including their significance in understanding the networks, the paper is included in appendix A. The networks were used as a visual aid for analysis, to analyse the information sharing pattern in the department. More in-depth analysis was carried using relational statistical methods, which differs from ordinary linear statistics.

Social network analysis (SNA) provides tools to carry out network analysis, exploring factors like; the density, reciprocity, shortest distance etc. Some of these terms would be explained later in the next chapter, and they are very useful in giving further insight to the visual network details, but the findings are exploratory.

SNA also provides tools to test variables statistically, like correlation and regression, which mean the same as they mean in mainstream statistics, but in this case what is being tested is the relationship and the values given to them (in the case of valued graphs) and not the actors' attributes, although in some cases the attributes can also be used.

Another significant difference in network statistics and mainstream statistics is sampling and significance testing. While sampling is very important for general statistics, it is not as important for social network analysis (Borgatti and Cross 2003), because in a social network the unit is a link between two actors or nodes, which could be a lot for even a small number of actors. Social network researchers usually pick out a population which is defined by a boundary based on the phenomenon under study rather than try to get a sample that might be generalised to a wider population. For example, in the case of a hypothetical network of just seven actors, there are 42 ($N^2 - N$) possible cases to be used in statistical calculation, and it increases almost exponentially as the number of actors increases.

The statistical significance of a test is affected by the sample and desired power in mainstream statistics (Drewberry 2004). In social network analysis, the significance of a test is calculated using quadratic assignment procedure (QAP) which uses a default (usually 14000), or a user defined, number of permutations to create random permutations of the network matrices and generate the probability of the randomly generated matrices (alternative hypothesis) generating the same result as the one generated in the test (Noreen 1989). The details are a lot more complex, but that is the basic idea. The logic is similar to that of mainstream statistics, just that instead of depending on the sample size to get a significant result, it depends on the random permutations.

Software Used for Analysis

There are several software packages available to carry out social network analysis. One of the more popular packages is UCINET which comes with Netdraw, both developed by Borgatti and Foster (2003), who are prominent researchers in SNA. A list of most of the software available can be found on the International Network for Social Network Analysis (INSNA) website.

However, after careful consideration of some of the software packages available, what was important was ease of use, since the author was new to social network analysis. UCINET did not have a very user friendly interface and it appeared to require technical skills to carry out the analysis, so users required some sort of training or extensive reading. This was the case with most of the other available packages, and their visual output was not very professional either. Figure 4.4 and Figure 4.5 shows sample images of network diagrams from two of the packages explored.

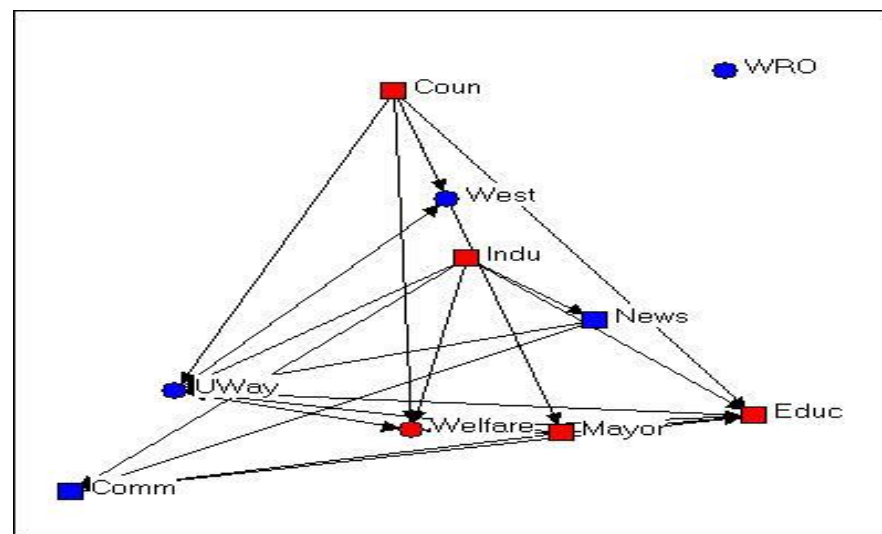


Figure 4.4 Sample Network diagram from SNA tool - Adapted from Hanneman and Mark (2005)

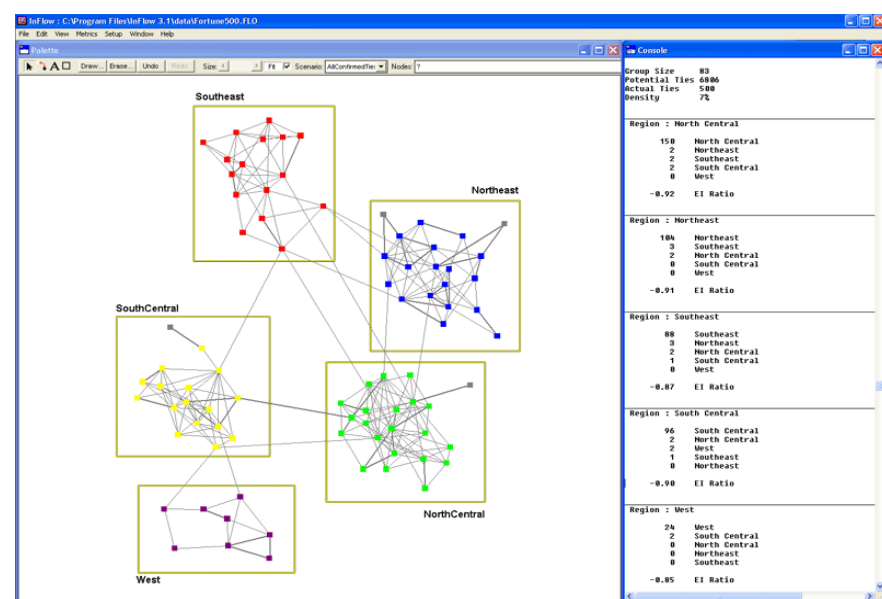


Figure 4.5 Sample network diagram from another SNA tool - Adapted from Krebs (2008)

The network output from both Figure 4.4 and Figure 4.5 does not have very good graphics, and the user has to type in some text to provide certain commands to run some analysis. This made the author discount these two packages for use in conducting social network analysis.

There is another software developed in Asia, Netminer, which stood out from the rest, with its user interface and ease of use. It gave very detailed instructions in conducting several network analysis and statistical tests. It had a more appealing output, in terms of the network diagrams produced, and it could generate random permutations of networks to over 100,000 networks. All the analysis could be done at the click of a button once the data was uploaded into the software.

The only downside to this was that it was one of the most expensive packages, and proved difficult to get initially, because of funding. After applying for a grant, it was approved and the Netminer software was purchased, and was used to carry out the social network analysis. Figure 4.6 shows how different the sample output from Netminer is, compared to the others.

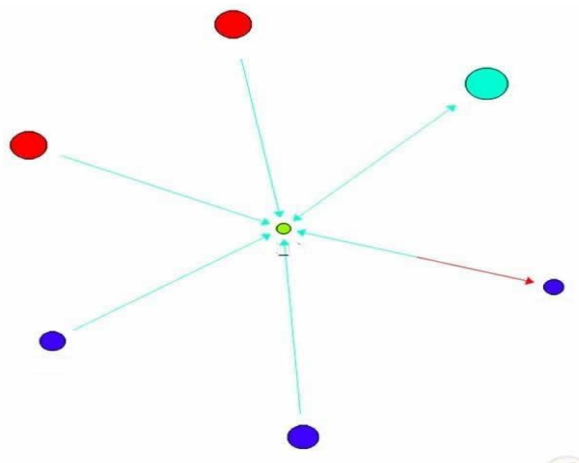


Figure 4.6 Sample Netminer network

In Figure 4.6 the size of the network nodes reflects the propensity of the individual nodes to carry out certain actions, depending on the context of the actual network being studied. The colour of the nodes could also be used to represent categories, for example, job roles in an organisation. The directed links represent a connection from one node to another, in the direction of the link, and the undirected links, represent a mutual relationship in both

directions, between two nodes.

Analysis of Interview Data

The qualitative data from the semi structured questionnaire was analysed using grounded theory coding techniques (Strauss and Corbin, 2008), where the findings are grounded in the data, through the various stages of coding. The other data analysis technique considered was thematic analysis, but the exploratory nature of the study, and the need to build theoretical understanding grounded in data, meant that coding techniques from grounded theory was preferred. Researchers like Stall-Meadows (2010) have shown that you can use the coding techniques of grounded theory in Case study research in order to generate theory grounded in data.

The coding process was followed through, from open coding through to axial coding, with the exception of the selective coding stage. This is because the study is not a grounded theory study, but uses the grounded theory coding procedure as an analytic tool to understand the qualitative data. The coding process was done in iterations, for each case, with an emphasis on different overarching categories throughout that particular iteration. These overarching factors were identified as significant through a mixture of Strauss and Corbin's (2008) recommendations (Process and context), the need of the research (Factors and Emotions), and pointers from the early field work (Power relations).

The factors generated from the findings were divided into direct and indirect factors; the direct factors are those that influence an individual's information sharing behaviour directly. Indirect factors are referred to as those factors that have been mentioned as subsets of the direct factors, they influence the direct factors, thereby influencing the individual's information sharing behaviour, indirectly.

Emotion in this study is the emotional response that individual's experience as they share information; face barriers to information sharing, and try to overcome those barriers. Power relations, refer to any situation that is an antecedent or a consequence of differences in roles, or an individual trying to exert authority, and any other related occurrences. Process refers to those strategies and activities that individuals go through, as a result of information sharing or to overcome barriers to information sharing. Context are those

factors that make a huge difference to information sharing, but do not relate directly to the individual, and in their absence, the outcome could be different.

Five different iterations of coding were carried out with these overarching categories in mind: Emotion, Power relations, Context, Process, and Factors. The stages of the grounded theory coding techniques used during the analysis of each iteration are described below:

1. Open coding (descriptive):

Descriptive open coding is carried by reading through the interview transcripts and coding each sentence that the author thinks refers to any of the five categories mentioned earlier. The software package used for this, which is described in the next section, allows for sorting these codes in the form of tree nodes, which allows the author to form a pictorial view of the findings.

2. Open coding (interpretive):

After coding into categories for the first iteration (done descriptively at the first stage), each category is analysed to determine the properties and dimensions that they have. This is done by being more interpretive with the codes from step 1, and bringing in the researcher's experience in the organisational setting, the social network data, and responses from open ended questions from the questionnaire.

3. Axial coding:

The different factors in the categories are then brought together in a narrative, by linking them using the identified properties and dimensions, to understand how the factors influence each other and in turn influence proactive information sharing behaviour.

4. Finally, themes which are similar across the different categories (e.g. Context, Emotions etc.) are joined together and the narratives adjusted, including all the properties and dimension, giving one big picture for each case. Further axial coding is done at this stage, including identifying intervening variables, context, strategies, consequences etc. to give a clearer picture of the findings.

The Software Used for Analysis

Choosing a software package for the qualitative analysis was not too difficult, because most of the available packages offer the same functions. Prior to starting out on the analysis of the qualitative data, there was a training on Atlas, which the author attended with an open mind to understand what functions it provided that Nvivo did not. However, Nvivo is freely available at the university and is more widely used, and hence it would be easier to access support if needed, so the author decided to use Nvivo. The author still had to undertake a two day training course on a newer version of Nvivo.

Validity and Reliability

Traditional research validity has been based on factors like internal and external validity, reliability, and objectivity. For qualitative studies, Guba and Lincoln (1986) suggested credibility, transferability, dependability, and confirmability. They emphasised that the rigour of qualitative inquiry should be judged by the evidence of a systematic process followed, reflexive consciousness about the researcher's perspective, appreciation of others perspectives, and fairness in describing the constructions of the underpinning values. This study follows most of these processes, to ensure validity of the research. Although, being a mixed methods study, there is a certain level of objectivity; but it is a qualitatively dominant mixed methods study which means it demonstrates more qualities of a qualitative study.

There was a systematic process of purposeful selection of cases and participants, and the use of a theoretical framework to influence the research. The researcher also reflected on his background and worldviews in the previous chapter to put into perspective any bias in interpreting findings. All participants' perspective was considered in analysing the data, to ensure fairness in representation of the findings, which are co-constructions of the participants in each case.

Credibility refers to the validity within a study and is similar in concept to the traditional concept of "internal validity" (Riege, 2003). Credibility is strengthened by giving as vivid

a description as possible of the research study. This study gives a very vivid description of, not just the organisations, but of the participants, and the credibility of the study is further bolstered by the combination of research methods. By using social network analysis, findings about the participants' social environment in relation to the phenomenon under study were holistically explored.

Dependability is similar in concept to the quantitative concept of reliability, which is related to repeatability of the study, and if it would yield the same findings (Eunjung Lee, 2010). This is not always possible in qualitative focused studies, but can be mitigated, to a certain extent, by maintaining a good audit trail during the study. Maintaining a record of decisions made during the analysis of the data, data storage, and implementation of procedures. Appendix K provides snapshots of coding done in Nvivo during the analysis process of the qualitative data, Nvivo also provides an opportunity for auditability, with annotations as the analysis process is carried out.

Examination of the phenomenon under study should provide enough information to enable the reader to judge transferability. Transferability refers to how consistent findings are in similar contexts (Eunjung Lee, 2010). Koch (1994) suggests that transferability is dependent on the degree of similarity between two contexts. The two organisations used in this study, though are fundamentally different, have the uniting factor of being a group of people trying to achieve a certain goal, and hence already demonstrate a level of transferability of findings in both organisations. A rich contextual description is given of each case in this study, to enable the reader to transfer the findings to any other similar contexts.

Confirmability is about establishing a logical conceptual link between the findings in the cases and the methods used (Fishman, 2005). To ensure that the findings from this study are from the participants in the study, the author's background and worldview has been described, and a snapshot of the coding done during data analysis, to get to the findings, can be found in appendix K. Also the limitation of the research methods and techniques used are discussed in the evaluation chapter. These should, together, give the reader a clear picture of the research process, and avoid any bias on the part of the author.

This study has taken measures to ensure that the approach and methodology used, the findings and discussions, all make up a valid research study, and these have been demonstrated by outlining the steps taken to ensure credibility, dependability, transferability, and confirmability.

Member Check

Member check was done by sending interview interpretations via email to participants. Not interpretations with quotes or explanations, but the generic and conceptual interpretations, which included the factors and their relationships, along with the narratives explaining them. Participants were also asked if they wanted a more detailed report on the findings in that particular group to be circulated, or not. If everyone is in favour of circulating it, then a more detailed report of that particular case is sent to everyone, but the responses from the generic interpretations were used as member checks of the author's interpretations. This is because of the sensitive nature of the data collected and the relational nature of the data as well, to avoid any unwarranted conflicts within the group.

Recap of Methodology

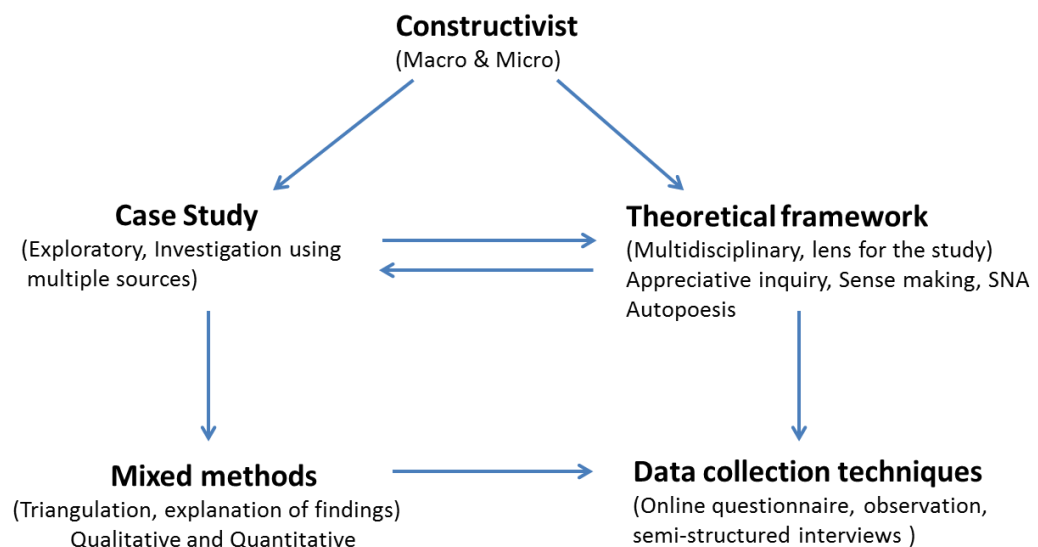


Figure 4.7 Research methodology summary

This section recaps the research methodology, to describe the basic building blocks of the study. Figure 4.7 illustrates how the paradigm, methodology, theoretical framework, research method, and data collection techniques are related, and influence one another to make up the overall research strategy.

A constructivist research approach seeks to understand the macro and micro parts of the phenomenon under study (Dixon and Banwell, 1999), which requires intense investigation and exploration, and that is what a case study gives to a research study (Johansson, 2007). The need to understand the macro and the micro, also influences the types of theories which were included in the theoretical framework. A case study is different from other types of methodologies because it employs the use of a theoretical framework (Eunjung Lee, 2010), and the theoretical framework is also tailored to suit the exploratory nature of the case study.

The exploratory and investigative nature of a case study research requires the use of different data sources and types for triangulation and explanation of findings (Yin, 1997), which led to the use of mixed methods. Using a mixed methods approach then directly influenced the data collection techniques which were used in the study, but these techniques are also simultaneously influenced by the theoretical framework, as the lens through which the study is carried out.

Summary

This chapter has clarified the philosophical stance of the research study, as a constructivist study and how this influences the way the study is viewed. The theoretical framework which uses theories like autopoiesis, social network theory, appreciative inquiry and sense-making, from various disciplines is also discussed and a summary outlining how it serves as a lens to view the study through, is illustrated with a diagram.

The study uses a mixed methods approach, and the exact type of mixed methods approach used was identified as a fully mixed sequential dominant status. The mixed methods approach was used to achieve complementarity and development of the different types of data sets used and the analysis strategies are typology development and data consolidation.

The overall research strategy promotes the use of an ethnographic study, within one of the cases, to help understand the case in depth, and therefore lead to better findings.

The chapter also explains the emergent nature of the research design and how this led to changes in the objectives and methodology of the research as the study progressed. The different phases in the field study showed that there were considerable obstacles to overcome in the field, and the researcher had to adjust to these constraints, but also ensure that the study was still in line with the overall strategy.

The research methods used in the study were influenced by the theoretical framework, and each stage of the field study and application of each technique sought to address one of the research objectives. The observations and reflections, along with the literature review addressed the first objective, which was to critically review the literature. Then tailoring social network analysis through the collection of data from online questionnaires, addressed the second research objective. Finally, using the tailored techniques to identify proactive information sharing individuals in the organisation, and the factors which influence their behaviour, addressed the final two objectives, along with an evaluation of the techniques used.

This chapter then goes on to describe how validity and reliability was ensured in this study, by ensuring credibility, dependability, transferability, and confirmability. In summary the research methodology was influenced by the research question, the organisational constraints, and the theoretical framework. There was also room to allow for emergence, and changes were made as the study progressed.

References

- Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." Journal of Organizational Behavior **14**(2): 103-118.
- Beck, C. (1993). "Qualitative research: the evaluation of its credibility, fittingness and auditability." Western Journal of Nursing Research **15**(2): 263-266.
- Bergen, A., & While, A. (2000). A case for case studies: Exploring the use of case study research in community nursing research. Journal of Advanced Nursing, 31, 926-934.
- Bryman, A. (2004). Social Research Methods. Oxford, Oxford University Press.
- Bryman, A. (2006). "Integrating quantitative and qualitative research: how is it done?" Qualitative Research **6**(1): 97-113.
- Buchanan, D., D. Boddy, et al. (1988). Getting In, Getting On, Getting Out and Getting Back. Doing Research in Organisations. A. Bryman. London, Routledge: 53-67.
- Burt, R. S. (1992). Structural Holes: The Social Structure of Competition Cambridge MA, Harvard University Press.
- Caracelli, V. J. and J. C. Greene (1993). "Data Analysis Strategies for Mixed-Method Evaluation Designs." Educational Evaluation and Policy Analysis **15**(2): 195-207.
- Chen, S., H. C. Boucher, et al. (2006). "The Relational Self Revealed: Integrative Conceptualization and Implications for Interpersonal Life." Psychological Bulletin **132**(2): 151-179.
- Coleman, J. S. (1990). Foundations of social theory. Cambridge MA, Belknap press of Harvard University Press.
- Cressey, P. (1988). "Doing research in organisations: Edited by Alan Bryman, Routledge, 1988, 268p, £8.95." European Management Journal **6**(3): 255-256.
- Creswell, J. W. (2003). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Thousand Oaks, CA, Sage.
- Datta, L. (1994). Paradigm wars: A basis for peaceful coexistence and beyond. The qualitative-quantitative debate: New perspectives. C. S. Reichardt and S. F. Rallis. San Francisco, Jossey-Bass: 53-70.
- Denzin, N. and Y. Lincoln (1994). Introduction: Entering the field of qualitative research HANDBOOK OF QUALITATIVE RESEARCH. Thousand Oaks: CA, SAGE: 1-17.
- Dervin, B. (1983). An overview of sense-making research: concepts, methods, and results to date. International Communication Association annual meeting.
- Dixon, P. and L. Banwell (1999). School governors and effective decision making. Exploring the contexts of information behaviour, Taylor Graham Publishing: 384-392.
- Doyle, L., A.-M. Brady, et al. (2009) An overview of mixed methods research. Journal of research in nursing **14**, 175-185

- Eunjung Lee, F. Mishna, et al. (2010). "How to Critically Evaluate Case Studies in Social Work." Research on Social Work Practice **20**(6): 682-689.
- Fishman, D. B. (2005). Editor's introduction to PCSP: From single case to database: A new method for enhancing psychotherapy practice. Pragmatic Case Studies in Psychotherapy, 1, 1-50.
- Flick, U. (1992). Triangulation revisited: strategy of validation or alternative? Journal for the Theory of Social Behavior, 22, 175-198.
- Floersch, J., J. L. Longhofer, et al. (2010). "Integrating Thematic, Grounded Theory and Narrative Analysis: A Case Study of Adolescent Psychotropic Treatment." Qualitative Social Work **9**(3): 407-425.
- Fuller, J. B., L. E. Marler, et al. (2006). "Promoting felt responsibility for constructive change and proactive behavior: exploring aspects of an elaborated model of work design." Journal of Organizational Behavior **27**(8): 1089-1120.
- Giddings, L. S. (2006) Mixed-methods research: Positivism dressed in drag? Journal of research in nursing **11**, 195-203
- Granovetter, M. (1983). "The Strength of Weak Ties: A Network Theory Revisited" Sociological Theory **1**: 201-233.
- Greene, J. C., V. J. Caracelli, et al. (1989). "Toward a Conceptual Framework for Mixed-Method Evaluation Designs." Educational Evaluation and Policy Analysis **11**(3): 255-274.
- Guba, E. G. and Y. S. Lincoln (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. Naturalistic evaluation. D. Williams. San Francisco, Jossey-Bass: 73-84.
- Guba, E. G. and Y. S. Lincoln (1988). Do inquiry paradigms imply inquiry methodologies? Qualitative approaches to evaluation in education: the silent scientific revolution. D. M. Fetterman. London, Praeger: 89-115.
- Hanneman, A. and Mark, R. (2005). Introduction to social network methods. Riverside, CA: University of California, Riverside. Available at: <http://faculty.ucr.edu/~hanneman/>
- Harr, D. v. d. and D. M. Hosking (2004). "Evaluating appreciative inquiry: A relational constructionist perspective." Human Relations **57**(8): 1017-1036.
- Howe, K. R. (1988). "Against the quantitative-qualitative incompatibility thesis or dogmas die hard." Educational Researcher **17**: 10-16.
- Hughes, D. (2010) The Rickter Scale: Making a Difference. Available at: <http://www.rickterscale.com/assets/docs/Rickter%20Paper%20Dr%20Deirdre%20Hughes%20Master%2017%20Nov%202010.pdf>
- Ishikawa, A. (1999). "Knowledge management, autopoiesis and apoptosis." Kybernetes **28**(6/7): 821 - 825.
- Jackson, T. W. (2007). "Applying autopoiesis to knowledge management in organisations." Journal of Knowledge Management **11**(3): 78-91.
- Johansson, R. (2007). "On case study methodology." Open House International **32**(3): 48-54.

- Knox, H., M. Savage, et al. (2006). "Social networks and the study of relations: networks as method, metaphor and form." Economy & Society **35**(1): 113-140.
- Koch, T. (2006). "Establishing rigour in qualitative research: the decision trail." Journal of Advanced Nursing **53**(1): 91-100.
- Kowalski, K. (2008). "Appreciative Inquiry." The Journal of Continuing Education in Nursing **39**(3).
- Kramer, R. M., M. B. Brewer, et al. (1996). Collective trust and collective action: The decision to trust as a social decision. Trust in Organizations: Frontiers of Theory and Research. R. M. Kramer and T. R. Tyler. Thousand Oaks, CA, Sage.
- Krebs, V. (2008) Social Network Analysis software & services for organisations, communities, and their consultants. Available at: <http://www.orgnet.com/inflow3.html>
- Leech, N. and A. Onwuegbuzie (2009). "A typology of mixed methods research designs." Quality & Quantity **43**(2): 265-275.
- Lofland, J. (2006). Analyzing social settings: a guide to qualitative observation and analysis. Belmont, CA Wadsworth/Thomson Learning.
- Maturana, H. and F. Varela (1987). The Tree of Knowledge: The Biological Roots of Human Understanding. Boston, MA, Shambhala.
- Mertens, D. M. (2003). Mixed methods and politics of human research : the transformative-emancipatory perspective. Handbook of mixed methods in social & behavioral research. C. T. Abbas Tashakkori. California, Sage: 135-164.
- Mingers, J. (2002). "Can social systems be autopoietic? Assessing Luhmanns social theory." Sociological Review **50**: 278-299.
- Mosindi, O., Sice, P., (2011) 'Social network analysis and information systems in organisations: Highlighting the need to understand information sharing behaviour', UK Academy for Information Systems (UKAIS). St Catherine's College, Oxford 11 April 2011. Available at <http://aisel.aisnet.org/ukais2011/34/>
- Nahapiet, J. and S. Ghoshal (1998). "Social Capital, Intellectual Capital, and the Organizational Advantage." The Academy of Management Review **23**(2): 242-266.
- Parker, S. K., U. K. Bindl, et al. (2010) Making Things Happen: A Model of Proactive Motivation. Journal of Management **36**, 827-856
- Pickard, A. J. (2007). research methods in information. London, Facet Publishing.
- Quick, T. (2003) Autopoiesis. DOI: www.cs.ucl.ac.uk/staff/t.quick/autopoiesis.html
- Reichardt, C. S. and S. F. Rallis (1994). Qualitative and quantitative inquiries are not compatible: A call for a new partnership. The qualitative-quantitative debate: New perspectives C. S. Reichardt and S. F. Rallis. San Francisco, Jossey-Bass.
- Riege, A. M. (2003). Validity and reliability tests in case study research: A literature review with "hands-on" applications for each research phase. Qualitative Market Research: An International Journal, 6, 75-86.

- Robb, F. F. (1989). "The application of autopoiesis to social organizations: A comment on John Mingers' reply." Systemic Practice and Action Research **2**(3): 353-360.
- Savolainen, R. (2006). "Information use as gap-bridging: The viewpoint of sense-making methodology." Journal of the American Society for Information Science and Technology **57**(8): 1116-1125.
- Schultz-Jones, B. (2009). Examining information behavior through social networks: An interdisciplinary review. Journal of Documentation, Emerald. **65**: 592 - 631.
- Shenton, A. K. and S. Hayter (2004). "Strategies for gaining access to organisations and informants in qualitative studies." Education for Information **22**(3): 223-231.
- Smith, J. K. and L. Heshusius (1986). "Closing down the conversation: The end of the quantitative-qualitative debate among educational inquirers." Educational Researcher **15**(1): 4-12.
- Snow, R. M. and E. A. Leach (2005) *Social Network Analysis and Systems Change*.
- Stall-Meadows, C. and A. Hyle (2010). "Procedural methodology for a grounded meta-analysis of qualitative case studies." International Journal of Consumer Studies **34**(4): 412-418.
- Strauss, A. and J. Corbin (2008). Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory. Los Angeles, California, Sage Publications.
- Walsham, G. (1995). "The Emergence of Interpretivism in IS Research." Information Systems Research **6**(4): 376-394
- Wasserman, S. and K. Faust (1999). Social Network Analysis. Cambridge, MA, Cambridge University Press.
- Wey, T., D. T. Blumstein, et al. (2008). "Social network analysis of animal behaviour: a promising tool for the study of sociality." Animal Behaviour **75**: 333-344.
- White, L. (2008). "Connecting organizations: Developing the idea of network learning in inter-organizational settings." Systems Research and Behavioral Science **25**(6): 701-716.
- Wilson, T. D. (1994). Information needs and uses: fifty years of progress? Fifty years of information progress: a Journal of Documentation review. E. B.C. Vickery. London, Aslib: 15- 51.
- Wilson, T. D. (2003) Philosophical foundations and research relevance: issues for information research
Journal of Information Science **29**, 445-452
- Yin, R. K. (2003). Case study research: Design and Methods. Thousand Oaks California, Sage Publications.
- Yin, R. K. (1997). Case study evaluations: A decade of progress? New Directions for Evaluation, **76**, 69-78.

5 Private sector case study outcomes

Introduction

The chapter describes details of the first organisation used as part of this study, it explains the organisational structure, research participants' background, nature of participants' jobs, and the internal culture of the organisation. The chapter further discusses the findings from each of the two departments (as separate cases) in the first organisation in this study. It discusses the variations and particularities of findings within these cases.

Chapters three and four have described the ethnographic influences which helped to generate the research objectives, the methodology, and the different stages of the field research used to achieve these objectives, respectively. The primary objective in this study was to determine the factors which influence proactive information sharing behaviour, and to do that, data was collected during the author's ethnographic experience, using online questionnaires, and semi-structured interviews to explore these factors. This chapter explains and discusses these factors as identified from the data collected.

The data collection was carried out in phases, as was explained in chapter four, and in each phase, factors thought to influence proactive information behavior were identified, which then helped to define the next stage of the data collection. So for the first part of this chapter some hypotheses are tested using social network analysis, based on initial findings during the author's ethnographic experience and literature reviews, and the results to the different relational and statistical tests are explained.

Findings from this hypothesis testing and social network analysis are then used, with a further literature review, to create and develop the interview questions, and the findings from the interviews are discussed in the final part of the chapter, demonstrating evidence of each factor that influences proactive information sharing behaviour and other issues related to the particular factor. This structure is repeated for the two cases used in the first organisation, referred to as case 1A and 1B.

A summary of the findings from the interviews is then presented in the form of a narrative to help put the vast findings together into one picture. Finally a summary of both findings from the social network analysis and the semi structured interviews are consolidated, where possible, to give a richer picture of the findings in each case.

Case One

Company Background

The company in this research setting manufactures safety equipment. The company is headquartered in Germany, and the author was working at their base in the UK. The company has about 250 employees, and a hierarchical organisational structure with separate functional departments. Each department has a manager, and the managers report to the Managing Director.

The organisation is a UK base for the parent organisation in Germany, and as such, has all the necessary departments to generate income like the parent organisation, but it is leaner, and does not have as many people across its departments. This is because the headquarters provides most of the services, like parts and central IT services. The UK employees serve their customers by liaising with the head office when they need to. There are two other branches in strategic locations in the UK but this organisation serves as the UK headquarters of the other UK based branches.

The organisation has a traditional split in its departments, with about ten departments, each one focusing on a separate function. Initial stages of the field study were carried out in the IT department, Service department and R&D department, and during a site wide project, there was the opportunity to see most of the organisation. Two other departments were chosen for more systematic data collection, case 1A (production) and case 1B (purchasing), and they are used as two separate cases in the study.

Research Background

There were four departments involved in research; production, purchasing, servicing and IT. Servicing and IT were involved in the early stages in helping frame the research and developing initial factors that influence proactive behaviour. Production and purchasing department were involved in later data collection, to help answer the research question.

Researcher's Initial Involvement

Service Department

The Service Department is in charge of servicing machines on customer premises. This department consists of a manager, two administrators and several field engineers based in different regions across the UK. The field engineers only came on site for administrative purposes and to collect materials.

The service department had contracts with clients that had purchased products from the organisation, to service the products at certain times in the year. Some clients had these contracts, while others just booked one off jobs with the servicing department. It was the job of the administrators to keep details of these contracts, and ensure that when an engineer responsible for a particular region came in, they were given a job sheet with the upcoming servicing appointments in that area. When clients made a call for a one off job, this was to be included in the job sheet as well.

Engineers are responsible for making sure they had the necessary parts to carry out a particular job, and also to keep track of their expenses while out in the field. If they ran short of material or parts, they have to come in to replenish their stock and drop off their expenses forms as well. The administrators would then process the expenses, and ensure that they are paid accordingly.

The manager's main concern here is to ensure that they get contracts with clients, and ensure the continuous flow of revenue, but also to make sure that they are not spending more on repairs than they are charging clients, therefore maintaining a profit margin. However the decentralised nature of the servicing process made it difficult for the manager to get information on costs, and therefore was not able to judge if the department was making a profit, or not.

IT Department

The IT department is responsible for managing hardware resources (laptops, networks etc.), and software elements such as licensing issues and servicing users. At the start of the engagement the department had one manager, one administrator, two hardware engineers and two software engineers. Just before the end of the author's tenure at the company, another hardware engineer was employed.

This department serves as an internal service department to all the other departments and they provide the technology that is necessary for the other departments to carry out their duties efficiently, both hardware and software. The administrator is the first port of call for any user queries. She in turn allocates this as a job to one of the hardware engineers.

The department also develops bespoke software, and the request for this goes directly to the lead software engineer, he decides if he has enough time to handle the query, put it on hold, or pass it on the other software engineer. The manager, though in charge of overseeing all these activities in the department, is himself a software engineer, with particular skills in enterprise resource planning systems, which is very important to all their manufacturing activities in the organisation. The manager sits in a secluded office, adjacent to an open office where the rest of the staff are located, and have easy access to each other.

This is the department where the author was seconded at the start of the study, as an additional software engineer, but with the title "IT software consultant". Details of projects undertaken as part of the role have been discussed in chapter four.

Case 1A

The Production department is responsible for assembly of parts received from the German factory and for repairs of returned products from customers. This department has one manager, two administrators that serve as a communication link between the manager and the two technical groups; one engineering group in charge of production and one in charge of repairs. There is a production workshop and a repairs workshop, both are located in the same open space, and there are offices at the end of the workshops where the administrators and the manager are located.

Assembly of parts are done as per routine, most of the engineers have been doing this for many years, but software systems are being introduced as part of the managers bid to increase efficiency. They have to look up details of orders and assemble them as required, then update the system to reflect that this order has been fulfilled, among other activities. The engineers in charge of the assembly are referred to as technicians, because they just assemble the parts together.

The second group of engineers are responsible for repairs, when equipment is returned with a fault, they diagnose the fault and fix it if possible, or they replace a broken part. This resolves the problem in most cases, but occasionally they identify an unusual fault, which they have to report to the head office through the appropriate channels, so they can ensure future parts do not have similar problems.

The administrators helps with making sure all the processes run smoothly, by being the first port of call for engineers, when they have problems, and they also help to pass on any information to the engineers. Figure 5.1 shows the hierarchy of roles that exist in this department; it is top to bottom in terms of authority in the department. The manager is largely approachable, as he has to make his way through the shop floor to his office, so the engineers can reach him when they need to.

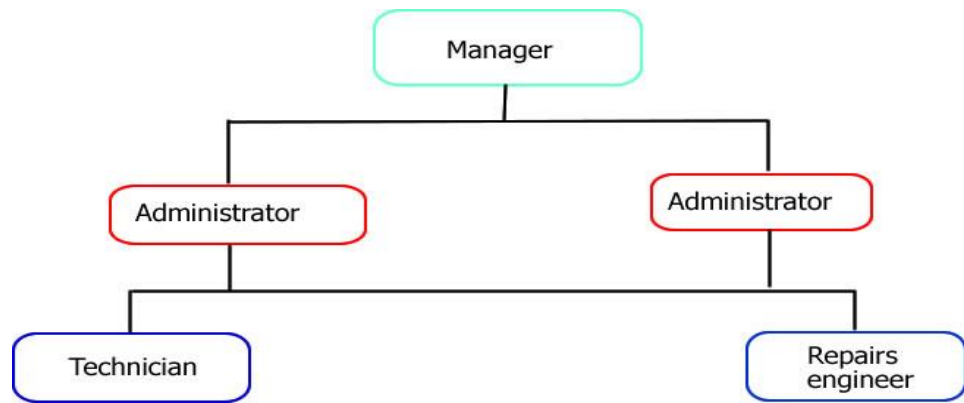


Figure 5.1 Departmental chart for case 1A

Participant Description

Participants were contacted through their manager, and most of them volunteered; the participants cover all the roles in the department. Only one or two employees did not initially take part from this department, they had either been on holiday, or on leave. Table 5.1 gives a brief summary of the demographics, job role, time at the department, and the preferred channel of communication of the research participants from this department.

Table 5.1 Participant background information from case 1A

Name	Age range	Gender	Role	Time at department	Preferred communication channel
Participant A/1A	46-55	Female	Administrator	12 years	Email
Participant B/1A	36-45	Male	Technician	5 years	Conversation
Participant C/1A	46-55	Male	Technician	4 years	Email
Participant D/1A	36-45	Female	Repairs engineer / Administrator	7 years	Conversation
Participant E/1A	26-35	Female	Administrator	1 year 8 months	Email
Participant F/1A	46-55	Male	Manager	5 years	Conversation
Participant G/1A	46-55	Male	Repairs engineer	5 months	Conversation

Table 5.2 gives more contextual information of the participants who completed some of the open ended questions during data collection for the social network analysis.

The summary is written around key issues, like their positioning in the information sharing social network, their motivation for sharing information, and the types of relationship they share with their colleagues in the department.

Table 5.2 Participant background information from case 1A

Name	Social network summary	Motivation for sharing information	Type of relationship shared with colleagues
Participant B/1A	Colleagues do not think he is active or shares information. Only one of the other technicians says that he shares information with them	He feels that information should be shared so that others can do the job correctly	All colleagues say they share a formal relationship
Participant C/1A	Colleagues agree that he is the most proactive with information, of all the technicians	Shares information because of the pride in the job, and feels strongly about the attentiveness of colleagues when he passes information on to them	All colleagues say they share a formal relationship
Participant D/1A	Colleagues do not think she shares information proactively, and that shows in the network diagram	She feels that she should share information with her colleagues to enable them to do a good job	
Participant E/1A	Colleagues think she is quite proactive and shares information with them.	She feels colleagues should be reliable and respectful, to make it easy for her to approach them and offer assistance	Everybody in the department agrees that she shares information with them, with some formal and some

		and share information.	informal
Participant G/1A	Considered by his colleagues to be proactive and shares information with them		He seems to have very formal relationships with most of the people in the department

Case 1A is the production department, which is responsible for assembling products, using parts from the headquarters. The department also handles repairs of damaged products, and feedback the damages that are due to design and or production flaws to the headquarters. This department is a good case for the study of proactive information sharing because there is a constant need to share information between colleagues, to carry out their jobs. The outcomes from the first stage of data collection are discussed next.

The questionnaire used for the data collection can be found in appendix B, and it was split into two sections. It was not tested by factor analysis because of the number of responses needed to carry that out, but researchers in psychology and social psychology were involved and gave feedback which helped improve the questionnaire.

The questionnaire was distributed to 13 volunteers in case 1A, nine completed the first part, and seven completed both parts.

The first part of the questionnaire pertains to the individuals' demographics, how they perceive their information sharing abilities, wellbeing, and questions to evaluate a proactive personality. The questions for measuring interval variables were measured on a five point scale. The second section of the questionnaire is related to the social network, each respondent was asked to select from the department, colleagues who share information with them, and then answer questions about frequency of information sharing, communication channels, proactivity of the sharer, reliability and credibility of the sharer.

The main variables that were measured by the questionnaire are outlined below, some were measured in two parts, first as a self-assessment, and then from the colleagues' view. The questions for the Proactive personality variable were adapted from Bateman and Crant's (1993) proactive personality scale. Questions for other variables were gotten from a mixture of literature and discussions with researchers in the school of Psychology.

Table 5.3 Questionnaire items for relational variables

Variable Name	Questions
Proactive personality	<ul style="list-style-type: none"> • I love being a champion for my ideas, even against others opposition • I do not look for better ways to do things (reverse coded) • I feel driven to make a difference in my community, and maybe the world • Nothing is more exciting than seeing my ideas turn into reality
Organisational culture	<ul style="list-style-type: none"> • The values and norms in my organisation promotes information sharing • There are many unnecessary official procedures in the organisation • Being proactive in the organisation is met with reward e.g. Good feedback, Incentives etc.
Information sharing (self)	<ul style="list-style-type: none"> • I share information with colleagues at work when I come across useful information • I actively seek to distribute information to colleagues related to their daily work tasks
Trust	<ul style="list-style-type: none"> • This colleague is often very reliable • This colleague is not always credible and I cannot trust them fully

Wellbeing	<ul style="list-style-type: none"> • On a scale of 1 to 10 where would you rate your general wellbeing? where 1 is very bad, and 10 is excellent • To what extent do the following factors contribute to your ability to share information with colleagues? <ul style="list-style-type: none"> a. Feeling valued and respected b. General Wellbeing e.g. sound mind, feeling good
Type of relationship	<ul style="list-style-type: none"> • State if your interaction with this colleague is formal or informal (by formal we mean strictly work interactions and informal meaning a closer association) • What is the nature of the relationship between you and the selected colleagues? [Boss, Supervisor, Fellow team member, Subordinate]
Information sharing (colleagues)	<ul style="list-style-type: none"> • These colleagues are actively looking to share information with me? (by active we mean; going out of their way to get you information you might need) • This colleague is always looking to distribute information to enable people work better • This colleague shares information with me
Proactive personality(Colleagues)	<ul style="list-style-type: none"> • This colleague is always driven to make a difference in the department and organisation • This colleague tends to take the initiative in starting up new projects or ideas

Before discussing the analysis of the social networks, it is imperative to define some of the terms that would be used frequently, to make the analysis clear. Table 5.4 below defines some of the social network analysis terms.

Table 5.4 Social network analysis terms

SNA Term	Definition
Binary network	A basic network with only two values in the matrix (0 and 1), 1 signifies a connection, and 0 signifies no connection
Valued network	A network that has 0 signifying no connection, but instead of having 1 to signify a connection, any number above 0 signifies a connection, and could also mean the strength of the relationship or the category of the relationship
Symmetric network	This is a network that does not specify direction of a link and every connection between two actors is reciprocated
Directed networks	This is a network that specifies the direction of a link, so while actor A might be connected to actor B, actor B might not be connected to A.
Density	This is the ratio of available links in the network to the total possible number of links in the network
Diameter	Diameter is the longest distance or longest number of links connecting any two nodes in the network
Cutset	Is the node or group of nodes, which if removed, would divide the network into two independent component parts
Degree centrality	The total number of relations an actor has in a network. The in-degree is the total number of links that come into the actor, from other actors in the network, and out-degree is total number of links which go out from an actor. In a valued graph it is the sum of the values given in any direction or in both, if that is the case
Ego network	An ego network is an actor's immediate connection to its direct neighbours, it could be inward connections, or outward connections, or both
Weight	This is the value given to the a connection in a valued network

Network Diagrams and Features

Figure 5.2 depicts the information sharing network diagram of case 1A. Although the questionnaire asked participants to signify those that share information with them, the links on the network have been reversed to make it easier to understand. Each directed link in the network represents the target node or actor having answered that the source node or actor shares information with them, and not the other way round. The size of the nodes represents how active they are at sharing information, as decided by their colleagues, so in effect, the node size is proportional to how many outward links the node has.

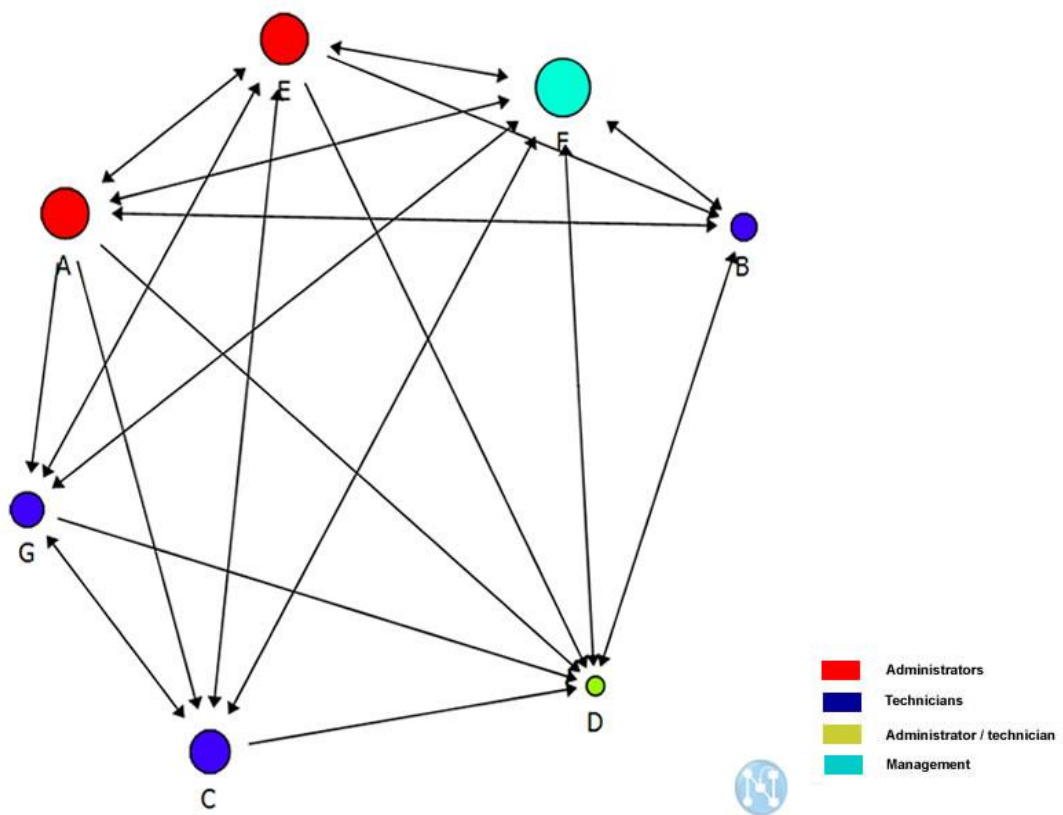


Figure 5.2 Case 1A active information sharing network

The main networks that were created are: Boss / Team member relationship network, formal / informal relationship network, communication channels network, proactive personality network, information sharing network and actively sharing network. Most of the networks are valued networks, the formal / informal and communications channel networks are also weighted but they are categorical (the values signify different categories). The networks that would be referred to the most in this chapter are the

proactive sharing network, which is a combination of the information sharing network and the actively sharing network, the formal / informal network, and the communication network. Figure 5.3 shows the formal / informal network of case 1A.

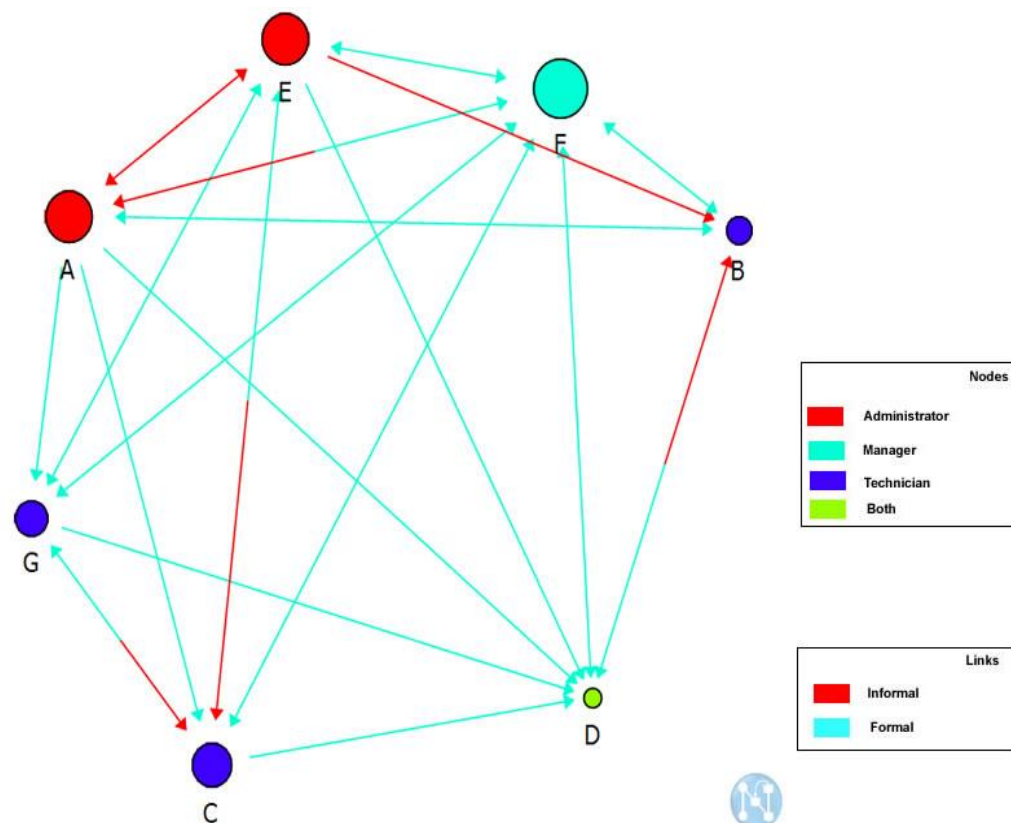


Figure 5.3 Case 1A Informal / formal information sharing network

The result of the frequency matrix for formal / informal relationships and information network in Figure 5.3 shows that there are more formal than informal relationships in case 1A, in fact informal relationships only make up just less than a third of all relationships.

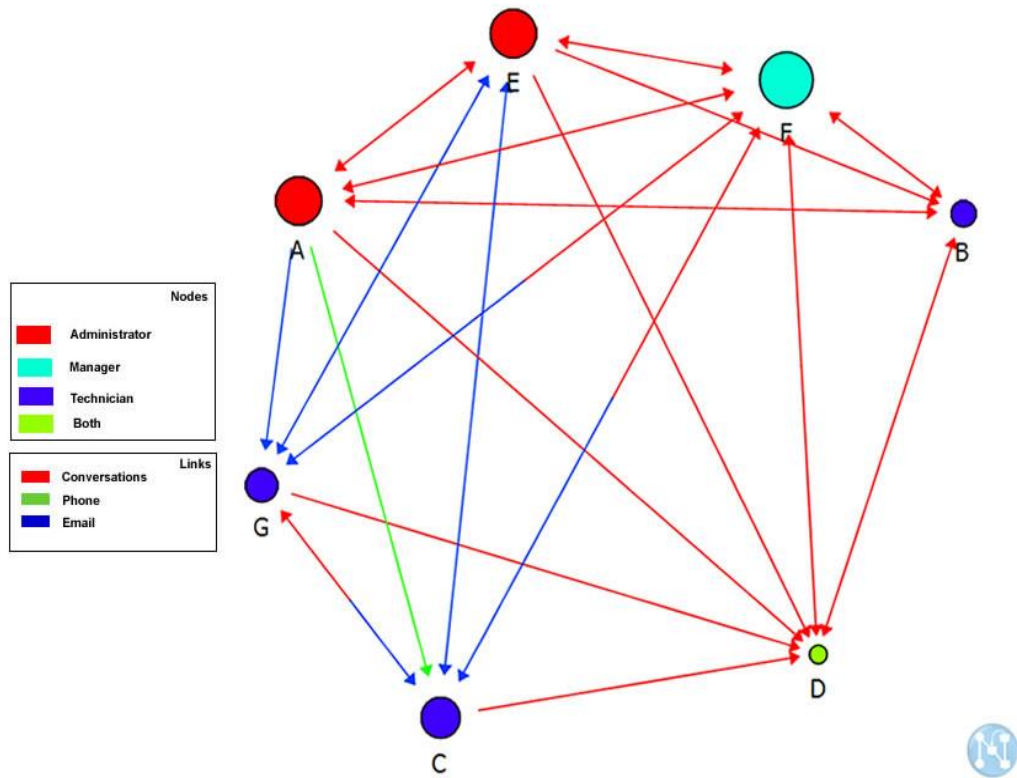


Figure 5.4 Case 1A Communication channel network

The frequency matrix for the communication channels network in Figure 5.4 indicates that conversations are the preferred method of communication in case 1A.

Network Properties

Table 5.5 case 1A Network properties

	Case 1A
Density	0.738
Reciprocity	0.632
Total number of links	31
Ratio of Formal / Informal ties	3.43
Most used communication channel	Conversations
Most prominent relationship among members	Team members
Number of mutual links	12
Cutset	A,D,E,F
Diameter	2

Table 5.5 shows the number of links in the network, the network density, diameter etc. The high density shows that the network, though small, is very connected, and the links (which are directed) are significant for a small number of nodes (participants). The maximum number of links in a directed network is $N^2 - N$, where N is the number of nodes, and in case 1A with seven nodes, this results to 42. In case 1A, the density of 0.738 shows that 73.8% of the total links available are connected in the network, which is 31 links out of a possible 42 in this network. There is also a high level of reciprocity between actors which is apparent in the number of links and density.

The dyad census which simply shows the number of mutual, asymmetric and null (number of nodes not connected directly or indirectly) relationships shows that there are 12 mutual information sharing connections in case 1A. The minimum cutset in case 1A has four

nodes, but this is not as important as it might appear, because the number of actors in the network are few. Table 5.6 below gives some descriptive statistics about the resulting valued networks that have been merged.

Table 5.6 Descriptive statistics for case 1A

	Count	Valid	Min	Max	Mean	Std. Dev.
Actively sharing network	42	100%	2.2	5	2.476	1.764
Proactive personality network	42	100%	2.7	5	2.595	1.806
Trust Network	42	100%	2.5	5	2.786	2.007

The answers to the questions which generated the network were given on a five point likert scale; table 5.6 shows the mean values for the respective networks, the maximum value and the standard deviation from the mean. This is just to give an overview of the distribution of the answers on the questionnaire with regards to trust in their colleagues, the proactive personality of colleagues, and how actively they share information.

Central Information Sharing Individuals

Having described and analysed the general data, the next few sections analyse the participants who exhibit high information sharing behaviour, determined by those who have high out-degrees in the information sharing network.

Table 5.7 Network properties of central actors in Case 1A

	Case 1A			
	A/1A	E/1A	F/1A	Combined
No. of links	9	10	12	25
Reciprocity	0.5	0.667	1	0.667

The cutset in Table 5.7 gives an indication of the actors that are central in the information sharing network of case 1A. Of all the actors that are part of the cutset, participant D/1A has the lowest out-degree, but was included automatically by the software because of its high in-degree in the network. In order to identify those who share information the most in the network participant D/1A will be removed from the cutset, which leaves three other participants; A/1A, E/1A, and F/1A, who have been identified by their colleagues to exhibit high proactive information sharing behaviour.

Table 5.7 reports the network properties of the ego network of the neighbours who have an out-relationship with actor F/1A. Actor F/1A has six in-links with neighbouring actors which it reciprocates to give 12 links in total. It has a reciprocity value of one, which shows that actor F/1A receives information from everybody it shares with.

Actor A/1A has six in-links with neighbouring actors, of which it reciprocates only three to give a total of nine links. It has a reciprocity value of 0.5, which is already calculated from the amount of links actor A/1A reciprocates.

From the network properties of the ego network of neighbours who have a relationship with actor E/1A, actor E/1A has six links with neighbouring actors, of which it reciprocates four to give 10 links in total, and it has a reciprocity value of 0.66.

All three actors are connected to the six actors in the network, which means they share information with every member of the network, and only differ in the number of actors that share information in return with them.

The network properties of the combined network connections of all three actors A/1A, E/1A, and F/1A, shows that together they are involved in 25 of the 31 links that exist in the entire network which is over 80% of the network connections. From the network properties we have looked at, it is clear that these are the central information sharers in the network.

Factors that Influence Proactive Information Sharing Behavior

During the field work, and the literature survey carried out, a number of potential factors that influence proactive information sharing behaviour were identified. These factors were built into the online questionnaire, to test how much influence they have on proactive information behaviour, they include: proactive personality, role, and formal / information relationships. The hypotheses behind selecting these factors, and their influence on proactive information behaviour are discussed next.

Proactive Personality

Hypotheses 1: A proactive personality would increase the chances of individuals sharing information actively

Table 5.8 Correlation of proactive personality and information sharing in case 1A using Spearman's rho (ρ)

	Proactive personality(Merged)	Information Sharing (Merged)
Proactive personality(Merged)		
Actively Sharing (Merged)	0.955	

Count = 42, valid 100%

(P >= observed) = 0, (P == observed) = 0, (P <= observed) = 1 (based on a 100000 permutations)

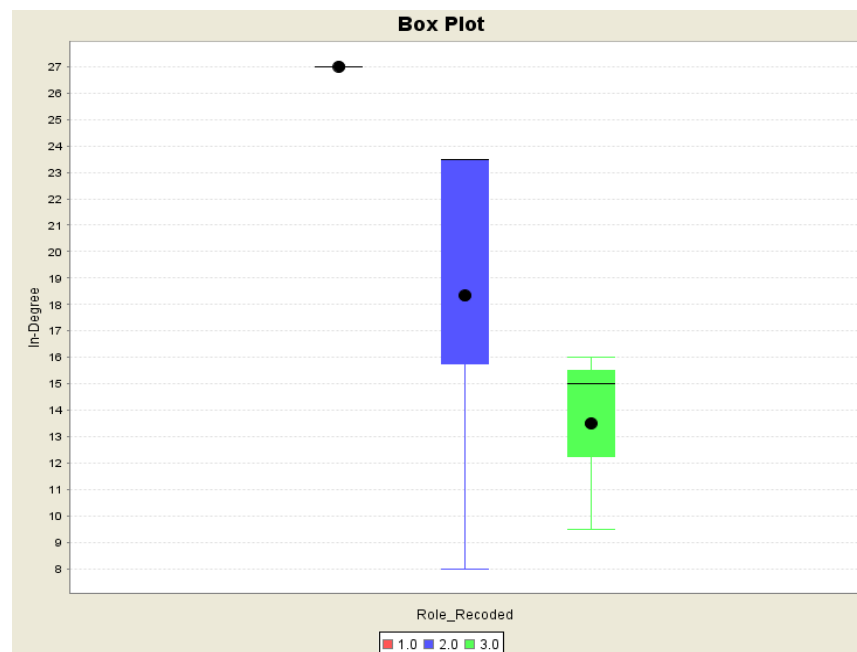
Proactive personality questions were divided into two categories in the online questionnaire, as an independent self-assessment in the first part and as observations of colleagues in the network in the second part of the questionnaire. To test this hypothesis the average values given to an actor on the valued network of the questions pertaining to proactive personality are correlated with the values given in the merged information sharing network.

Table 5.8 shows the result of the correlation and the result of the random permutations of the correlation. The result shows a strong support for the hypothesis in case 1A; from the random permutations, the probability that they generated a value as extreme or more extreme than the observed statistic is zero, and hence the observed value could not have been gotten by chance.

Social network analysis is an exploratory method and this result simply indicates that there might be a link between an actor's proactive personality and their information sharing behaviour, this is explored in depth during further data collection and analysis.

Role

Hypothesis 2: An individual's role in the organisation affects how they share information



1 = Manager, 2 = Administrator, 3 = Technical

Figure 5.5 Roles and information sharing Group A

The roles of the research participants in case 1A were divided into three groups, 1 for management, 2 for administrative, and 3 for technical; and they have been re-coded accordingly. To test the hypothesis, actors in a particular role are checked for a higher tendency to share information, which is their out-degree in the information sharing network.

The box plot in Figure 5.5 illustrates that those in the admin roles have a reasonably higher out-degree than those in the technical group, and management, though only one actor in this case, had the highest out-degree. While this supports the hypothesis, the values of the random permutations of the anova test carried out was undefined, it generated a small F-statistic of 1.036, which does not show a significant difference in the means, but the box plot does give an indication that this is something to pursue further, and this is explored further during the interview stage.

Formal / Informal Relationships

Hypothesis 3: Individuals that share an informal tie have a higher frequency of information sharing

The hypothesis is tested by checking for the difference in the means of the out-degree of the information sharing network for formal and informal relations. The results of the anova test to check for the difference in means of formal and informal relations are below.

Table 5.9 Test for difference in informal/formal relations

Observed	(mean)	Std. Dev.	P (>= Observed)	P (== Observed)	P (<= Observed)
209.819	12.72	23.744	0.001	0.001	0.999

Count = 42, Valid = 100% (based on a 100000 permutations)

The observed F value is large positive which illustrates a significant difference in the means of the out-degree values of informal relations and formal relations in the network, this shows support for the hypothesis. The probability that the randomly generated permutations were as extreme as or more extreme than the observed F statistic is 0.001 in both cases.

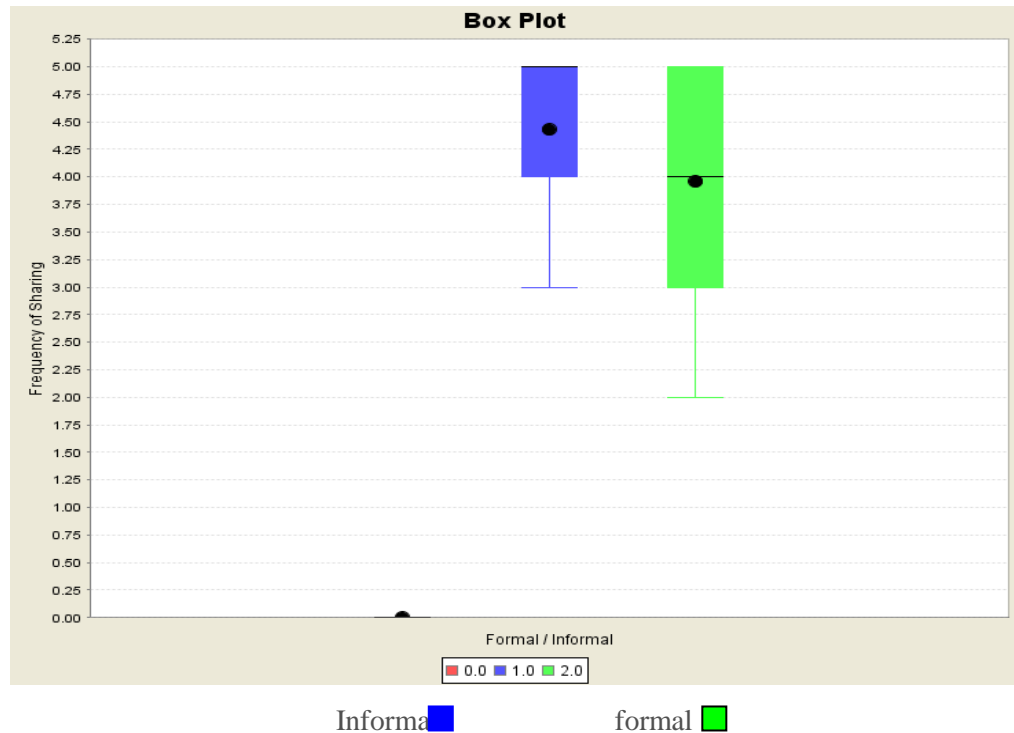


Figure 5.6 formal / informal ties information sharing

The box plot in Figure 5.6 also shows that in case 1A the informal relationships have a higher tendency for sharing information even though you have more formal relations.

The next section discusses the findings from the interview stage of the research. It builds on the exploratory findings from the online questionnaire and social network analysis, and also adds some new research categories. From the initial seven participants that took part in the online questionnaires, five were available for interviews; others were tied down with projects. The nature of the questions asked in the interviews is described later in the chapter.

Analysis of Interview Outcomes

Details of the questions used for the interviews can be found in appendix C, below are the final findings from the interview data analysis. The findings aim to show the variation and complexity of each factor, by highlighting the different aspects of each factor using evidence from the data. The factors which the questions from the semi structured interviews were centred around are: **Job satisfaction, Cooperation, Sense of Involvement, Past experience, Proactivity, Trust, External pressure, Role, and Well-being, Motivation, Outcome, Barriers.**

Each area above was addressed with regards to information sharing, either relating to their colleagues, the group, or of the participants themselves. The findings are presented in different stages of analysis in this order; Direct and indirect factors, emotions, power relations, context, and process. The factors that affect proactive information sharing directly and indirectly are discussed next.

Factors that Influence Proactive Information Sharing Directly

Role

Researcher: So would you say there has been a time when you have been less proactive in the department?

“There probably has been, because my role has changed over the last year, I went from almost doing a minor job in the workshop to now being one of the senior members. Where previously it had been other people passing the information on to me, rather than receiving it, now I’m passing it on. So increased responsibility.” - Participant C/1A

Researcher: How much do you feel your role in the department affects your sharing of information with colleagues?

“I think that’s the same, being a senior technician in the department, like I said when the information comes in, it comes through to me first, sometimes the manager will see me then I’ll pass it on to the other members, because the manager sometimes wants my

feedback before the final decision is made. So then I'm then passing that information on."

– Participant C/1A

Researcher: With you changing job roles, have you shared information less or more in your previous role?

"I would say previously it's been lower where, because I haven't been the senior technician, I've been more receiving the information, whereas now, I'm more in the position of..." – Participant C/1A

Participant C/1A is making a clear link between sharing information and receiving it, as a function of his role. Participant C/1A feels that being in a more senior role has led to sharing more information as opposed to mostly receiving information when in a lesser role. From the next quote, it is clearer why this situation exists for participant C/1A.

Researcher: How proactive do you feel you are in your work role? You put in an eight, what was going on in your mind at that point?

"Well I would say that is probably because, a lot of the information that comes into the workshop, sometimes comes to me first because I am one of the experienced guys and I would pass it on to the new members of the team." – Participant C/1A

Researcher: Has there ever been a time when you have shared less information or when you been less involved with sharing information?

"Yes, just on jobs that I do not do, like obviously I am not sharing information about them, because I do not know about them. (So in the department, there are some things you do not do? - Researcher) Yes, there are jobs that I do not do, and I have not got as much knowledge as the person that does. So they would share the information rather than me." - Participant D/1A

This shows that it is actually the amount of knowledge and experience that an individual has in that role that enables them to be in a position to share, rather than receive information, and being in a senior or junior role is directly related to the amount of knowledge and experience in most cases. This factor would be referred to as **Knowledge / Experience**, to help with analysis.

Researcher: How much do you feel pressured into sharing information with others; you put a seven, what's the thinking behind that?

"I suppose, when we say pressure, just more a case of because we have got new members of staff, the expectation is they do not know it and they come to you for the knowledge to be passed on." – Participant C/1A

Researcher: How well do you share work related information with your colleagues? You put in a ten, what is going through your mind here, talk me through it.

"It is just the knowledge of my job, this particular job that I do, I know quite a bit, but like when customers come in, they tend to send them to me, to teach the customer how to like recalibrate things." – Participant D/1A

The quotes above are responses to questions relating to pressure felt from information sharing, and the individual's willingness to share, respectively. Participant C/1A alludes again to the point about people going to more experienced colleagues for information, and he puts it down to **expectation**, that less knowledgeable individuals will take this route. Participant D/1A reiterates the same point, but in a more subtle way, stating how people come to her because of her **knowledge**. This shows that increased knowledge can lead to more responsibility.

When questioned further about the influence of an individual's role in information sharing, participant B/1A and D/1A had this to say:

Researcher: How much do you feel your role in the department affects your sharing information with colleagues?

"Partly a function of my role and partly who I am." – Participant B/1A

Researcher: For example, if you want to go on to this administrative role, do you think you are very involved and active in the role because of the role or is it because of who you are. If you were to change to the admin role, would you be as involved?

“Yes I would, I think it is me as a person, because, I want to know my job, I hate not knowing what I am doing, so I want to learn, so I am comfortable with my job.” – Participant D/1A

Participant B/1A seems to think that it is a mixture of both personality and role that determines if an individual shares information in the organisation. Participant D/1A believes it is solely her personality that makes her want to get involved with the job and therefore, share information. For analysis purposes this would be referred to as **Personality**.

Researcher: How much do you feel part of the activities that go on within the department? You put in an eight, could you talk me through what is going on in your mind at this point?

“Again because I do get involved with most things, there are only a few jobs that I do not do, that I do not get involved with, so it is the same kind of thing really.” – Participant D/1A

Researcher: So do you think a lot of the work goes through you?

“Yes.” – Participant E/1A.

Researcher: So do you have to make any extra effort to be involved or does it just happen to come?

“Not really now, it lands on us.” – Participant E/1A

Participant D/1A and E/1A makes it clear from their quotes that their level of **involvement** in activities in the department is mainly as a result of their role.

Proactivity

Researcher: *For job satisfaction you put in an eight, do you think there is anything you could do to maybe get it up to a ten?*

“To get it to a ten we would have to be independent, but we are not, we are run by somebody who does not understand us, so I do not think it will ever be a ten...” – Participant G/1A

Researcher: *You are being run by the service person or the production person?*

“Yes, our manager is more mechanical and we are electronics. There is room for improvement, but we are not allowed to do it ourselves.” – Participant G/1A

Participant G/1A is new to the organisation, been there only six months, and he already has a feel for the culture in the department. He does not like that fact that there is no freedom to do what he or the other engineers feels is right, and as such there is no point trying to be proactive. For analysis purposes this would be termed, **Lack of authority**.

Researcher: *So do you have any personal motivation, which makes you feel, maybe you should do a little bit extra today, is there any personal motivation there?*

“No, there’s no motivation for anything, outside of getting the job done. We do not have...well this goes back to say we do not have the authority to change anything, it has to go through our supervisor and manager, and I am thinking well, and they do not know we work, as engineers. He does not have the experience or the time, to actually look into what we do. So we just work and we make suggestions, if the managers says yes, we do it, if he says no we do not do it.” – Participant G/1A

Difference in objectives between management and team members, in this case, differences in expertise, leads the members to be less proactive, because the members feel the manager lacks the understanding and time to give them what is needed to do their jobs properly.

Knowledge / Experience

This is a direct factor that influences information sharing, and has been covered to a great extent in the two previous factors, so it will not be discussed any further.

Nature of Information

Researcher: How much do you feel that trust influences you sharing information with colleagues, you put in an eight, what is on your mind at this point?

“Yes if you like the person, you tend to be more open, and if you do not know the person, then if they ask you a question then you answer the question. But if you know the person, you would give him a bit more. It is just one of those things where if you feel comfortable with somebody.” – Participant G/1A

Researcher: How much do you feel your past experiences with colleagues affect your willingness to share information with them?

“It does not affect work information, but it does affect personal information.” – Participant B/1A

Researcher: How much do you feel that trust influences your sharing information with colleagues, your put in a five here, so what is the thinking behind this?

“I suppose I probably left it at a five because I felt it was neither here nor there, I suppose there is a certain amount of... you know sometimes passing information to someone, and whether you trust them to then pass it on to other people or whether you actually do it yourself.” – Participant C/1A

Participant B/1A refers to the nature / type of information as an overarching factor which determines if trust affects his sharing of information with his colleagues. Participant G/1A on the other hand believes that trust does affect how much you share information with colleagues, and he would be more open with those he knows better. Participant B/1A is trying to say that regardless of what happens I would do my job, and Participant G/1A has given deeper insight into this. Participant C/1A suggests a different kind of trust, which is **trust in your colleagues' ability or competency (business trust)** to do what is expected of them, in this case, pass on information.

Reciprocity

Researcher: *What would you say is the most important motivation behind you sharing information with colleagues, is it your role or what would you say motivates you the most?*

“I suppose basically it’s the whole idea of sharing the information, so that they can do their jobs properly. It is more a case of; I would like to feel that the information would be shared with me, if it was on the other foot. You want everyone to be able to do the job equally well.” – Participant C/1A

Researcher: *What would you say motivates you to go out there to be helpful and share information with colleagues?*

“Friendliness and attitude again, we kind of motivate each other, and it is like if you do not help me I am not going to help you sort of thing.” – Participant E/1A

Researcher: *What kind of outcome do you expect when you provide information for a colleague?*

“Just respect...to be there for you sort of thing as a backup if they have valid information I expect them to give it to me freely.” – Participant E/1A

All the quotes above refer to **colleagues’ attitudes** and **expectations**, and how this goes on to become a mutual exchange, which is continuously fuelled by outcomes of information sharing activities, which might lead to sustained information sharing between colleagues.

Involvement

Researcher: *How much do you feel part of the activities that go on within the department?*

“I would probably be fairly well involved, because I am one of the experienced staff, and we have two new people started about 6 months ago, so there’s a lot of constantly walking

them through how to do things, so you are constantly passing on information to them.” – Participant C/1A

Researcher: How much do you feel part of activities that go on in the department; you put in a seven, so what is going on in your mind here?

“Any changes, we have meetings, and we get told. Because I am new to the company, other people get told first, and then it filters down to me. To get it higher, then I would have to be involved more in meetings more with the management.” – Participant G/1A

Participant C/1A’s quote reiterates the point of knowledge and experience leading to more information requests, and therefore having to share, but also the point that this makes him feel involved with the departmental activities. Participant G/1A gives insight into another reason why individuals might be less involved with information sharing and departmental activities, and that is the **length of time in the organisation**.

Past Experiences

Researcher: How much do you feel past experiences with colleagues affects your willingness to share information with them?

“I suppose past experience is sometimes, when you have shared information with someone and you feel that they have not necessarily listened to what you have said. You then get to the stage, where you are sometimes, not necessarily forthcoming, thinking that they are not necessarily listening to what you are saying anyway.” – Participant C/1A

Researcher: How much do you feel past experiences with colleagues affects your willingness to share information with them?

“Just attitudes, in the past like when I have asked them something and then had a bad attitude, I just would not go back to them for information again.” – Participant E/1A

Researcher: For job satisfaction you put an eight, has there ever been a time when it has been lower than this?

“No it is just, every now and then you have gripes with certain people but that is just minor, there is nothing.” – Participant G/1A

The quotes above all refer to how having negative experiences with colleagues with regards to information sharing; can lead to less **enthusiasm and willingness** to share with them in the future. With Participant C/1A, it is about the outcome of information sharing, colleagues not **listening or paying attention**, and with Participant E/1A it is just the **colleague's attitude**, and Participant G/1A tries to play the effects down, by saying its nothing.

Researcher: How much do you feel past experiences with colleagues affects your willingness to share information with them?

“Again it is just like when you are trying to learn people things, and if they are not willing to learn, or wanting to learn, then you feel like what is the point, you know that they are not going to take it in, that they are not wanting to learn, because some of them is like near retirement, you know that they do not want to go any further, so you would be like you are just wasting your time. “ – Participant D/1A

Researcher: Do you think its colleagues not willing, or the fact that they cannot get used to the technology?

“Both, like I am not mentioning names, but there's one particular person, it is just both, she does not want to learn, and I think it is because of technology. She finds it hard, the technology, so you can understand why, she does not want to learn. Because I was exactly the same I did not know how to, I was fine with computers when I first started here, but now I have learnt loads since I have been here and I am wanting to learn more, that is why I am like changing direction with my job.” - Participant D/1A

Participant D/1A mentions another type of past experience with information sharing that could lead to unwillingness to share information in the future. This is **resistance to change**, and she mentions two main reasons here, the colleague is near retirement and does not want to learn new technologies, but she also feels that it is not just the **fear of technology**, but the colleague sometimes is generally not **willing to learn**.

Researcher: Are there any barriers or things that hinder you from sharing information with people in your department?

“Occasionally it is a case of sometimes you share information and you feel that it has not been acted upon. So you tell someone something, expecting some sort of result or resolve from it and nothing happens on a couple of occasions like that, you then loathe going back with another problem because you feel that you are almost wasting your time. So you would almost find a work around or actually just let it fester sometimes.” – Participant C/1A

Participant C/1A makes the point very clearly, and shows how important outcomes of past information sharing activities can influence future information sharing with that particular colleague.

Formal / Informal Relationships

Researcher: How much do you feel that trust influences your sharing information with colleagues; you put in an eight, what is going through your mind at this point?

“Yes if you like the person, you tend to be more open, and if you do not know the person, then if they ask you a question then you answer the question. But if you know the person, you would give him a bit more. It is just one of those things where if you feel comfortable with somebody.” - Participant G/1A

This supports the relational statistic showing colleagues with informal relationships have a much higher level of proactive information sharing activity. Being more comfortable with a colleague as Participant G/1A mentions, leads him to give a bit more, even going out of his way to do so. This ties in with **trust** and **nature of information** as well, as this same quote was referred to, to show an individual being more willing to share information, when they are more familiar with a colleague.

Having gone through the factors that affect information sharing behaviour directly in organisations, the following section give an overview of the factors that affect information

sharing indirectly, under the following sub heading: **Indirect factors, Emotions, Power relations, Process and Context.**

Factors that Influence Proactive Information Sharing Indirectly

Some of these factors have come up while discussing the direct factors, they were highlighted in bold: **Personality, Knowledge / Experience, Lack of Freedom, length of time in the organisation, outcomes.** These factors would not be discussed further, as the quotes from the direct factors have given good insights on them.

Responsibility

Researcher: How much do you feel pressured into sharing information with colleagues?

“I suppose, when we say pressure, just more a case of because we have got new members of staff, the expectation is they do not know it and they come to you for the knowledge to be passed on. So its pressure or, you know, it is as it should be, I should be passing it on, because I know it and they do not. So it is not bad pressure, it is probably good pressure.”
– Participant C/1A

The quote above points to the responsibility that participant C/1A feels towards helping others, as a result of his role and knowledge, he feels that helping others with their queries is his responsibility, and he feels **obliged** to help.

Researcher: How much do you feel your role in the department affects your sharing information with colleagues? You put in a nine, talk me through what is on your mind.

“Because of my role personally, I get the job, then I have got to prioritise them, we basically lead what happens with the work, so the role is quite important.” – Participant E/1A

Researcher: How much do you feel your role in the department affects your willingness to share information with colleagues?

“I think that it is the same, being a senior technician in the department, like I said when the information comes in, it comes through to me first, sometimes the manager will see me

then I will pass it on to the other members, because the manager sometimes wants my feedback before the final decision is made. So then I am then passing that information on.
“– Participant C/1A

Researcher: *How proactive do you feel you are in your work role?*

“I Feel very proactive because I have to deal with clients on a daily basis.” – Participant B/1A

Participant E/1A and C/1A feel that their **role** determines how much responsibility they have to take up. Participant B/1A feels that his particular responsibility, as a function of his role, makes him more **proactive**.

Trust

Researcher: *How much do you feel that trust influences you sharing information with colleagues, you put in a five here, has there been a time when it has been more or less?*

“I would say it has actually possibly been higher, because I would say about a year and a half ago we had two quite experienced members, who are now not in the department, so it is a case of we have been working together for 2 or 3 years as well, so as you got to know people better...” – Participant C/1A

Researcher: *How well do you feel colleagues cooperate with each other in the department? You put in a seven, has there been a time when it has been lower than this, and what do you think has changed in that time and now?*

“People understand each other more and make more of an effort to get on.” – Participant E/1A

Researcher: *So is that within the office or outside - Interviewer*

“Within the department.” – Participant E/1A

Researcher: *So on a formal level*

“Yes.” – Participant E/1A

Participant C/1A's quotes suggest that trust increases with **length of time in the organisation**, and this happens, as participant E/1A puts it, as colleagues understand each other more and make the effort to work together.

Emotions that Influence Proactive Information Sharing

Again, from discussing the direct factors, some of the emotions have been touched on, and will not be discussed further in this section. They are: **enthusiasm, willingness, fear of change, feeling obliged**. The rest of the emotional factors are discussed below.

Feeling Moody

Researcher: Does your mood or personal disposition affect your willingness to share information?

"I suppose sometimes you cannot be bothered, but like you do, because it is your job, if somebody wants help, you just do, don't you. " – Participant D/1A

Researcher: How much does your wellbeing affect your information sharing? You put in a three here, talk me through what is going on in your mind here.

"I suppose human nature is if you are on your low day and I am feeling...there is the occasional period where sometimes you just cannot be bothered type things, or sometimes you have had a day where everything is being going wrong and you have just curled up into your little corner you know, and almost just want the day to finish." – Participant C/1A

Participant D/1A says she would share information regardless of how she feels, but participant C/1A says there is the occasional period where he does not feel like doing much. This goes with the **personality** of the individual as well, because that would determine how they would react in these situations, but the quotes highlight the different responses to information sharing when they feel down.

Satisfaction with the Role

Satisfaction with the role that individuals carry out on a daily basis can increase motivation to carry out the duties of that role. This satisfaction is as a result of a number of emotions, which are mentioned below.

Researcher: How happy are you with your job? You put in a seven, what is going through your mind here?

“We had a cell lead, he left, they did not replace him, but the actual thing, the cell leads responsibilities and decision making, then got put onto other people and its now been put onto me even though I have not actually gotten any recognition or you know.” – Participant C/1A

Researcher: Would you say there has been a time when your job satisfaction has been lower than this? What do you think has changed between then and now?

“I think what happened was at the end of last year, we had a member of staff who passed away, and suddenly we were a member of staff down, and all the responsibilities suddenly upon our shoulders, and we did not necessarily get the support (From management) we were looking for, which then made you feel negative about the job.” – Participant C/1A

Participant C/1A from the above quotes explains how **feeling unappreciated** made him feel negative about his job.

Researcher: How proactive do you feel you are in your work role? You put in an eight, so what is going through your mind at this point?

“A lot of the information that comes into the workshop sometimes comes to me first because I am one of the experienced guys, and I would pass it on to the new members of the team. Because if the information were to go straight to them, they might not necessarily know what the information is and how relevant it is. So I tend to filter it and pass on whatever is required.” – Participant C/1A

Researcher: How much do you feel your role in the department affects your sharing of information with colleagues?

“I think that it is the same, being a senior technician in the department, like I said when the information comes in, it comes through to me first, sometimes the manager will see me then I will pass it on to the other members, because the manager sometimes wants my feedback before the final decision is made. So then I am then passing that information on, once it has been decided what the actual outcome will be.

” – Participant C/1A

In the quotes above, participant C/1A explains almost the reverse of the previous situation, where he **feels important** by being the middle man with information sharing and the manager asking for his opinion. Though he does not mention that this makes him satisfied with the job explicitly, it does give him a sense of satisfaction generally.

Researcher: Would you say there has been a time when cooperation between colleagues has been lower? What has changed between then and now?

“Some of it was the pressure of being overworked, and the same old situation where we did not feel we were actually being supported by management, when there was an issue between the workshop staff and the admin staff. It felt as if, if you raised any point with the management they always backed admin staff, and did not listen to our side of the story or it felt like that.” – Participant C/1A

Researcher: Do you think you could do anything to get your job satisfaction up to a ten?

“To get it to a ten we would have to be independent, but we are not, we are run by somebody who does not understand us, so I do not think it will ever be a ten...” – Participant G/1A

Participant C/1A talks about his unhappiness over **management bias**. Both participants refer to being unhappy with management. It is important to note that participant C/1A had strong views about most things, and took the issue of feeling appreciated and support from management very seriously. While all his concerns are personal, they do add to the collective experiences of individuals in the department, hence their inclusion.

Power Relations

There are two factors related to power relations, the first one was discussed as part of the direct factors that influence information sharing, **lack of freedom / authority**. The other is discussed below.

Knowledge and Experience Creating a Position of Power

Researcher: How well do you share information with your colleagues? You put in a ten here, what was going through your mind here, talk me through it.

“Because I am up to date with all the databases and that, I tend to do the training, like if there is a new program, they will teach me first. I tend to be the first one to learn it, and then I help them if they get stuck. So I do help a lot, I have been training Sandra on ‘body guards’, even when the trainers come in, I give them a lot of information.” – Participant D/1A

Researcher: How much do you feel a part of the activities that go on within the department?

“I would probably be fairly well involved, because I am one of the experienced staff, and we have two new people started about 6 months ago, so there is a lot of constantly walking them through how to do things.” – Participant C/1A

Researcher: How proactive do you feel you are in your work role? You put in an eight, talk me through what is going on at this point.

“Well I would say that is probably because, a lot of the information that comes into the workshop, sometimes comes to me first because I am one of the experienced guys and I would pass it on to the new members of the team.” – Participant C/1A

Because participant C/1A and participant D/1A have more knowledge and experience, and are approached by their colleagues for assistance, it could make them feel important and in a position of power. This is not to say that they recognise this, but rather a case of having

an upper hand in relations with their colleagues due to their extra knowledge and experience.

Contextual Factors that Influence Proactive Information Sharing

Two of the issues that are considered part of the context in case 1A have been mentioned within power relations and emotions, they are; **management bias** and **lack of authority**. The other contextual factors are discussed below.

Nature and Similarity of Job Roles of Colleagues

Researcher: *How well do you feel you share work related information with colleagues?*

“With information sharing normally, because there is like three or four of us doing roughly the same job, sometimes when you are actually doing a job, it depends how much information you get passed on from someone else if you are taking over their job, you know, how much information is actually put against the job on what they have physically done in the past, so you can actually take the job over from them. This is probably the main problem with the information sharing.” – Participant C/1A

Researcher: *How much do you feel pressured into sharing information with colleagues? You put in a three, has there been a time when it has been higher, and what would you say is the reason behind that?*

“Probably yeah, just the nature of the job and we try and get things done as quickly as we can so we do not get a lot of pressure.” – Participant E/1A

Researcher: *What would you say motivates you the most in this environment, which makes you, get involved and help colleagues with information?*

“So that is my job and role is, as an engineer, a technician here. It is just to do the job, so you have to interact with people. I do not interact with too many people, outside of my area. I don’t have the time, unless it is a break or something.” – Participant G/1A

There are two issues in one here, first with the **nature of the job**, participant G/1A and participant E/1A illustrate how it constrains and liberates them as individuals, when it comes to interacting with others and being under pressure to share information respectively. This has been joined with the similarity of roles, because the **similarity or dissimilarity** of the roles is determined by the nature of the job. Participant C/1A explains that sometimes he has to take over a job from someone else, and the amount of information they pass on is crucial. This raises the question; if the roles are dissimilar would there be a need to stand in for a colleague? Or even the need to share information? So there needs to be a certain level of overlap before information sharing can occur.

Organisational Structure

Researcher: You selected an eight for job satisfaction because you say your manager does not have enough knowledge of what your team does?

“I think it is just the way the department is run, I mean they are doing the best they can, and we are doing the best we can, so even though I am happy, there is still room for improvement.” – Participant G/1A

Researcher: How much do you feel part of the activities that go on in the department? You selected a seven, what is going through your mind here?

“Any changes, we have meetings, and we get told. Because I am new to the company, other people get told first, and then it filters down to me. To get it higher, then I would have to be involved more in meetings more with the management.” – Participant G/1A

Researcher: Is there anything you could do to get your job satisfaction score up to a ten?

“To get it to a ten we would have to be independent, but we are not, we are run by somebody who does not understand us, so I don’t think it will ever be a 10...” – Participant G/1A

Participant G/1A, who is new to the organisation, seems to be at loggerheads with how the department is run, but accepts it is just the way it is. He also mentions that the lack of understanding from his manager makes it difficult for them to do their best, and this is because of the **structure of the department**, which makes him less involved. So this again is a contextual factor that is beyond the individual.

Use of Technology

Researcher: How well do you feel your colleagues cooperate with each other? You selected and eight, what is going through your mind at this point?

“Like we have got a new database that we have got to fill in and some of the older ones are having problems doing it. I have been trying to show them, but they try and avoid it, because they do not want to learn it.” - Participant D/1A

Researcher: So it is like a fear of technology?

“Yes. So they are not cooperating as much.” – Participant D/1A

Here the use of technology is not about aiding information sharing, it is about how it makes people less involved in general because of the fear of change, and this affects their willingness to share information.

Processes that Influence Proactive Information Sharing

Feeling the Need to Learn

Researcher: How proactive do you feel in your work role? You selected a ten, what is on your mind at this point?

“I do get involved with everything I can, because I am wanting to learn.” – Participant D/1A

Researcher: For example, if you want to go on to this administrative role, do you think you are very involved and active in the role because of the role or is it because of who you are. If you were to change to the admin role, would you be as involved?

“I want to know my job; I hate not knowing what I am doing, so I want to learn, so I am comfortable with my job. I am comfortable with my job now, and when I go into the admin side.” – Participant D/1A

This is an emotional factor, but also one that instigates a process to overcome whatever barrier there is to information sharing, by **involvement**. Participant D/1A tries to get involved with most things, and hence help out and share information, primarily because she wants to **learn** and know her job role better, which increases her knowledge and puts her in a better position to be proactive.

Summary of Findings on Case 1A

Summary of Interview Findings and Relationships between Factors

Figure 5.7 represents the summary of findings from the interviews and the relationships between factors in case 1A. The red rounded rectangles representing the direct factors, and the blue rounded rectangles represent indirect factors. Each factor is named on the first level, and variations of that factor are placed on the second level, then the third level, the purple fonts represent the affective factors that are associated with that particular factor. Finally, the contextual factors are represented in green rounded rectangles, and the relationships are named, to describe how the factors influence each other, and in turn influence proactive information sharing behaviour. The narrative below would help connect all the pieces together.

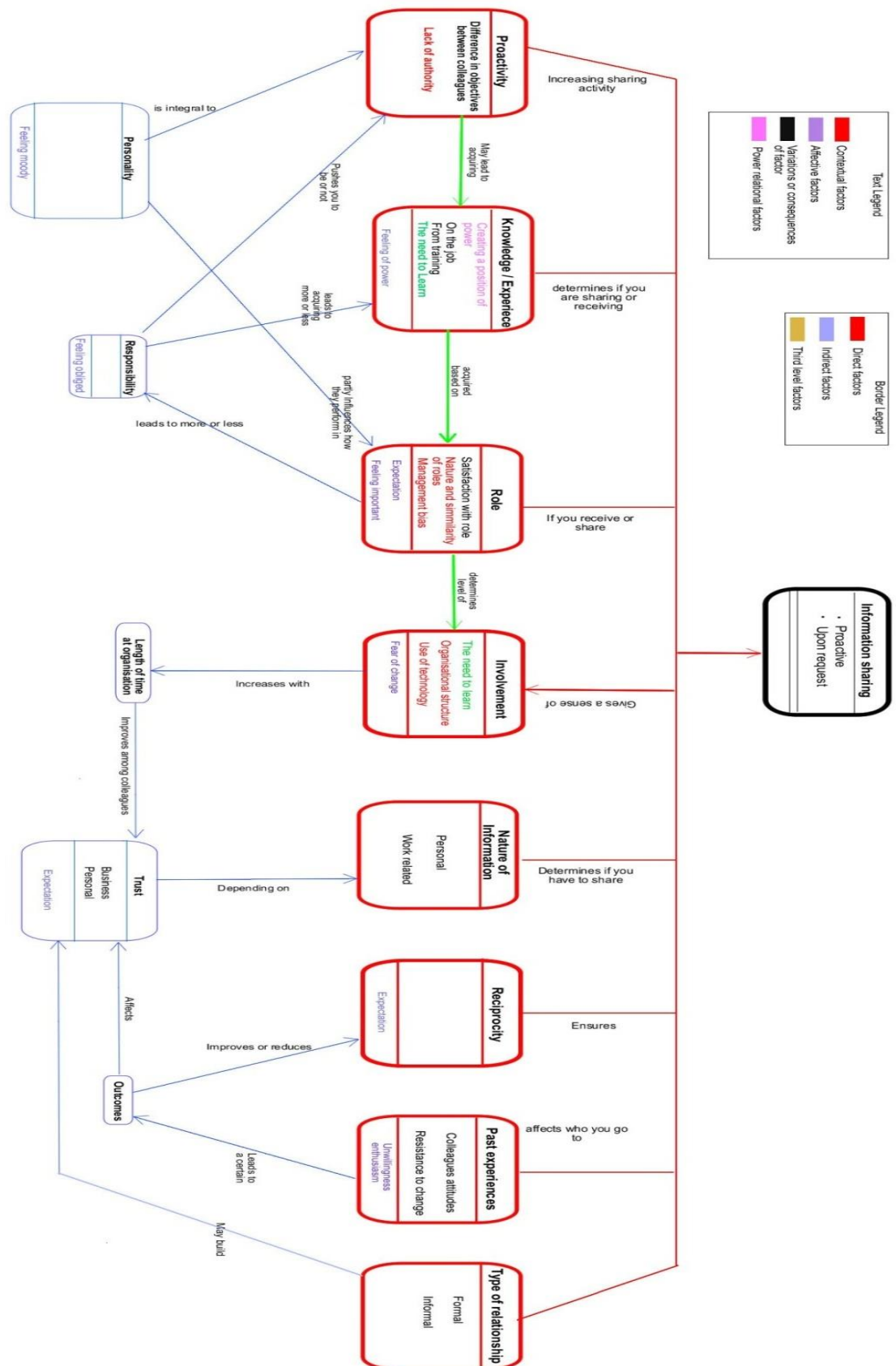


Figure 5.7 Relationships between factors that influence proactive information sharing behaviour in case 1A

Narrative which Links the Direct and Indirect Factors Together

The main factors that affect information sharing directly in case 1A are those in red on the diagram: ***Role, Proactivity, Knowledge / Experience, Past experiences, Reciprocity, Nature of information, Type of relationship, and Involvement.***

Of these direct factors that influence information sharing, the individual's ***role*** seems to be the most prominent, as it determines what ***knowledge*** the individual develops in the organisation, and also affects the level of responsibility, which might lead to the individual being ***proactive*** or not. Having a ***proactive*** personality also has a huge influence on an individual's information sharing ability (from the social network analysis) and willingness to acquire the required ***knowledge*** for their role. So there is a relationship between those three factors of ***Role, Proactivity and Knowledge / experience***, as they influence information sharing ability, they influence each other as well.

Reciprocity ensures that information sharing is sustained, as most of the participants gave an inclination that they would more openly share information with colleagues that also share information with them, or with colleagues that they expect to share information with them. Reciprocity can also be dependent on ***past experiences*** with colleagues, in terms of how they have behaved during past information sharing activities, which then goes on to influence their future behaviour. Reciprocity is also a huge motivator in colleagues' willingness to share information.

The type of relationship determines how much effort is put into satisfying an information request or being ***proactive*** with the information, and the ***nature of information*** determines how much trust affects the information sharing activity. For example if it is personal information, the level of trust would influence it more, than if it was work information. Information sharing on the other hand, influences ***Involvement***, participants feels more sense of involvement as a result of carrying out information sharing activities.

These main factors as described above, influence each other, but they are also influenced by other factors, which do not influence information sharing behaviour directly: ***Personality, responsibility, outcome, length of time in organisation, trust.***

While having a proactive ***personality*** helps the individual to be proactive, it also requires the right role and the right level of freedom in order to influence the information sharing activity of the individual. ***Responsibility*** is mostly a direct result of the kind of role the individual is in, which leads to acquiring a certain level of knowledge, which could lead to being more or less proactive. Some participants see this increased responsibility as pressure, while others see it as part of the job. The ***outcome*** of an information sharing activity, like not paying attention, or being receptive, or not showing gratitude, affects ***trust*** and reciprocity, which influences future information sharing activities.

The ***length of time in the organisation*** normally leads to the participant acquiring more knowledge, which could also lead to increased responsibility and increases the sense of involvement for the individual. ***Trust*** has been defined in two ways by participants; as trust in a colleague's personal integrity and trust in a colleague's abilities. Some of the interview responses suggest you have to trust your colleague's abilities but not necessarily the person, and this influences proactive information sharing, based also on the nature of the information.

Narrative for Emotional Factors and Power Relations

The main affective factors that were identified from coding are: ***Unwillingness, fear of change, satisfaction with role, feeling of obligation, feeling moody, and feeling unappreciated.***

Feeling ***unwilling*** to share information with a colleague as identified in the data, is mostly a result of past experiences with that colleague. From the main factors affecting information sharing identified before, past experiences that result in this kind of unwillingness is due to colleagues' attitudes and outcomes of previous information sharing activities with colleagues. Another reason for ***unwillingness*** to share is an affective state that is explained later, which is ***feeling moody***.

Fear of change is an affective state that leads to colleagues resisting change, and by so doing resisting the proactivity of others. In the case of this department, it was fear of technology in particular, and colleagues did not want to learn as such, which was thwarting the efforts of their proactive colleagues trying to help. This means that proactivity is not necessarily a singular act, because if the receiver is not receptive to the change that the proactivity brings, it might thwart the proactive efforts.

Feeling moody only affects the sharer of information temporarily, it makes them less willing to be proactive with information. This however does not affect sharing information upon request, from the data gathered in this organisation, since most people feel it is part of their job, and are *obliged* to share information upon request.

Feeling of obligation is that affective state that makes individuals to share information, mainly upon request, because they feel it is part of their jobs. This feeling does not make them proactive though, it just affects information sharing upon request. It also makes individuals feel less pressure when it comes to being inundated with information request, and they see it as good pressure, in order to get the job done.

Satisfaction with role has a huge impact on how proactive an individual is willing to be in their role, and how much responsibility they are willing to take up. The role might require them to be proactive, but if they are not satisfied with the role, they do not bring in their personality to it, and tend to just do just what is required of them. There are other affective states that can be linked to satisfaction with a role like; *feeling important* and *feeling unappreciated*. From the evidence these are the main affective states that swing individuals between a state of satisfaction or dissatisfaction with their roles. This indirectly affects their *willingness* to be proactive and share information with colleagues.

For power relations, there were various points that were raised, but they fall under two major categories; ***Lack of authority and Knowledge / experience creating a feeling of power.***

Lack of authority limits proactivity, even when the job role demands proactivity and the individual has a proactive personality, the individual cannot be proactive, when they lack the authority to make changes. For some of the participants, this can lead to less satisfaction with the jobs.

Knowledge / experience creating a feeling of power on the other hand fits in with the direct factors of knowledge / experience as identified to influence information sharing behaviour. In this context however, it also makes the individuals that possess it to feel more important and in a kind of position of power.

Narrative of Process and Context

Context

The main factors that have been identified as part of this context are: *Lack of authority, management bias, organisational structure, nature and similarity of job roles, and the use of technology.*

Lack of authority is the same from the power relations category, but it also overlaps into context, because the individuals' proactive information sharing might have been different, if they had the authority. *Management bias* leads to individuals who are not part of management, feeling less satisfied with their jobs, and it goes back to the point of people not having the *authority*. They have to go to management for almost any little problem, which inevitably leads to this feeling of management bias when they are not favoured.

Organisational structure influences the channels of communication and also whom people tend to share information with. It also constrains individuals' general involvement in the organisation. *Nature and similarity of job roles of colleagues* influences the responsibility given to individuals and the level of interaction between them. It also determines how well people receive the information passed on to them, depending on how similar their roles are. *Use of technology* in this particular case led to resistance of change from some individuals. Which means when new technology is introduced into a job process; some individuals could be unwilling to accept change, which could deter any information sharing about the technology or using the technology as a communication channel.

Process

There was only one factor that was identified in the process category: *feeling the need to learn*.

Feeling the need to learn is a personal and cognitive barrier that individuals face, and is overcome by having a proactive personality. By wanting to learn, an individual increases their knowledge base, which puts them in a position to be proactive in disseminating that information to others.

Consolidation of the SNA and interview findings in Case 1A

The fact that the central actors have over two thirds of the links in the information sharing network demonstrates that proactive individuals make a huge difference to the information sharing network in the organisation. This justifies the initial assumption of taking on the study of proactive information sharing behaviour, and also shows that, removing those individuals can have a detrimental effect to the information sharing network.

The high density of the network is evidence that it is indeed a rich case study for information sharing. However, this is mostly because of the central actors, who are proactive in sharing information, and evidence from the interviews show that this is partly because of their role, their personality, knowledge / experience they acquire over time, authority to act, satisfaction with their jobs, and other affective factors.

There is also a reasonable level of reciprocity in the network, although this is not only down to proactive sharing, it shows that individuals are ready to share information when they need to. From the interview findings, past information sharing experiences affect the willingness to proactively share information in the future. This insinuates that sharing information upon request could build reciprocity, provided it leads to good outcomes, which could begin to foster proactive information sharing behaviour.

There are more formal relationships than informal relationships in this case, yet the social network analysis reveals that informal relationships have more proactive information

sharing tendencies. This is buttressed in the interview findings, showing that an individual shares information more openly with colleagues they know better. However, knowing a colleague informally is not the only reason for individuals to share information proactively. Finally from the correlation analysis of proactive personality and information sharing, it is clear that having a proactive personality leads to sharing information proactively.

Case 1B

Case 1B is the purchasing department, responsible for procurement across the organisation. This department consists of a manager, buyers, and quality engineers, with two objectives. Buyers are responsible for purchasing supplies at a good price, and quality engineers are responsible for making sure of the quality of the purchases against internal standards, where appropriate.

Several departments in the organisation have to purchase items to carry out their duties, could be IT equipment, software, spare parts, training material etc. This is the central department that handles this procurement procedure and deals with suppliers on behalf of the other departments; all they have to do is put in a request to the purchasing department.

The buyers, like they are referred to, are responsible for making these purchases, managing supplier relationships, and negotiating good prices for the department. Their main aim is to receive these requests from colleagues, arrange the product and inform the initial requester about the delivery of the product.

Though each buyer tends to handle a portfolio of clients, they have a central place where they keep details on finished dealings with a particular supplier, so that someone else working with that same supplier at a later time, would have a base reference to start from.

Most times people can cover for others, because of this shared information about suppliers, and also help each other when they have information about a particular supplier that a colleague is dealing with.

The quality engineers, on the other hand, are responsible for quality around the organisation. This includes; the quality of products produced in-house and the quality of products purchased from suppliers. They also deal with the suppliers, but only when an issue about the quality of products supplied arises, and they usually liaise with the buyer responsible to sort out whatever problem there is.

There is a manager in the department, who oversees the affairs of both the buyers and the quality engineers, and most issues are passed through him, he had a background as a buyer before he was appointed the manager of the department. Figure 5.8 illustrates the departmental chart, in terms of roles and the hierarchy of authority.

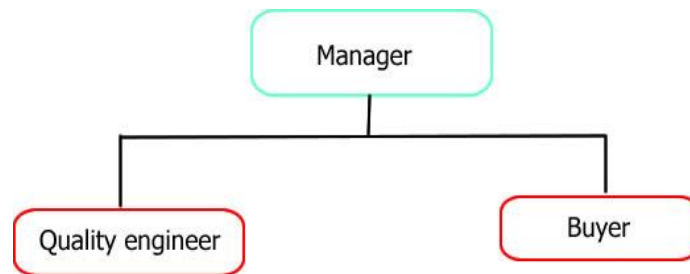


Figure 5.8 Departmental chart for case 1B

Participant Description

Participants in this department were contacted through the manager, just like in the first department, and all the participants were volunteers. Table 5.10, gives an overview of the participants involved in the study, their roles in the department, length of time spent in the department etc.

Table 5.10 Participant background information from case 1B

Name	Age range	Gender	Role	Time at department	Preferred communication channel
Participant A/1B	36-45	Male	Buyer	4 ½ years	Conversation
Participant B/1B	36-45	Male	Buyer	18 months	Conversation
Participant C/1B	46-55	Male	Quality engineer	10 years	Conversation
Participant D/1B	36-45	Male	Quality engineer	1 years 10 months	Conversation
Participant E/1B	26-35	Female	Buying assistant	2 years	Email
Participant F/1B	16-25	Male	Buying assistant	2 ½ years	Email
Participant G/1B	36-45	Male	Manager	17 years	Conversation

Table 5.11 gives more information about the participants who completed some of the open ended questions during data collection for the social network analysis. The summary is written around key issues, like their positioning in the information sharing social network, their motivation for sharing information, and the type of relationships they share with their colleagues in the department.

Table 5.11 Participant background information from case 1B

Name	Social network summary	Motivation for sharing information	Type of relationship shared with colleagues
Participant A/1B	His colleagues think he is not proactive, and does not share information a lot	He feels that everyone should be kept up to speed with information that is useful to them	He shares an informal relationship with everyone, with the exception of the manager
Participant B/1B	Identified by colleagues to be the most proactive information sharer in the department, with the exception of the manager		
Participant C/1B	His colleagues believe he is not proactive and does not share information with them and he is the least proactive in the network	He feels that everyone should have the right information, so that they can prevent faults as opposed to fault detection	Of the few colleagues he shares information with, he shares formal relationships with most of them, but to him almost everyone who shared with him he shares an informal relationship with

Participant D/1B	He is regarded by his colleagues to be relatively proactive in sharing information.		He believes that he shares an informal relationship with every one of his colleagues, but not all of those he shares information with felt the same way.
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Findings from Social Network Analysis

This is the purchasing department, which is primarily responsible for procuring supplies and products from external suppliers, for other departments in the organisation. The department also looks after quality in the organisation, to ensure that goods purchased are of good quality and also products produced within the organisation are of good standard. The findings from the first stage of data collection are discussed next.

Network Diagrams and Features

The same principle that was applied in generating the network in case 1A is applied here; and the network that is represented in Figure 5.9 is the proactive information sharing network, which is a combination of the actively sharing and the information sharing networks.

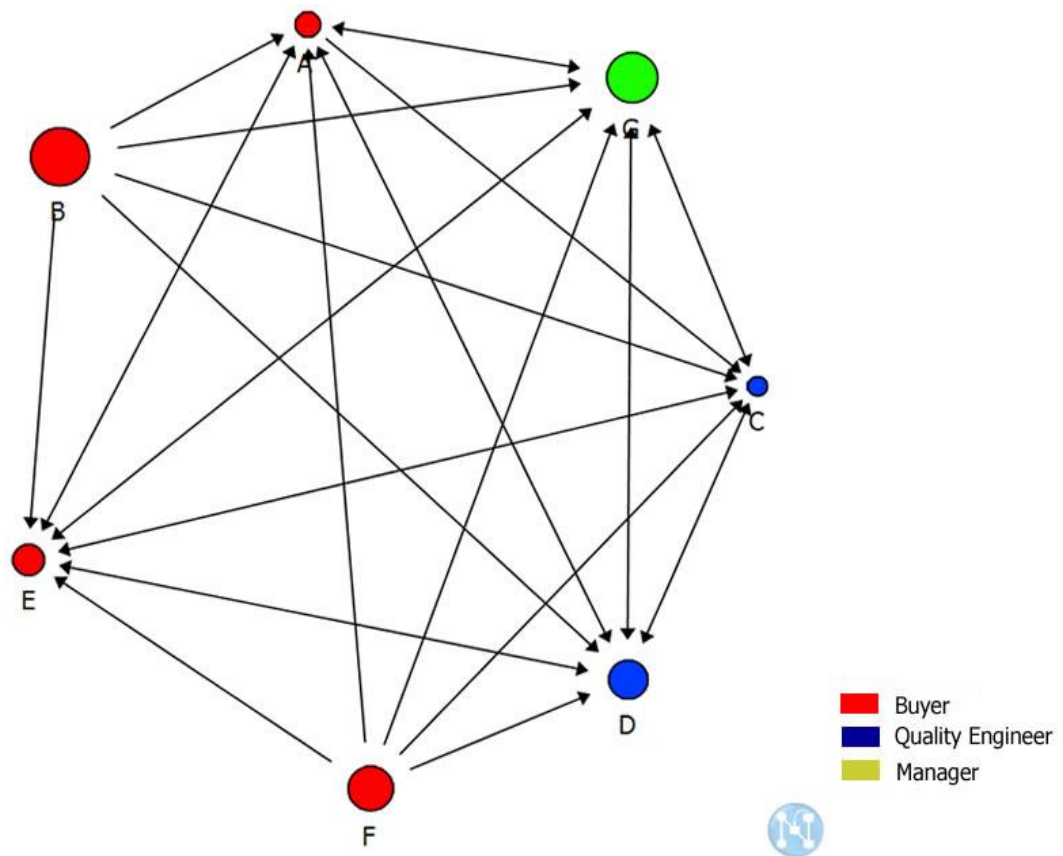
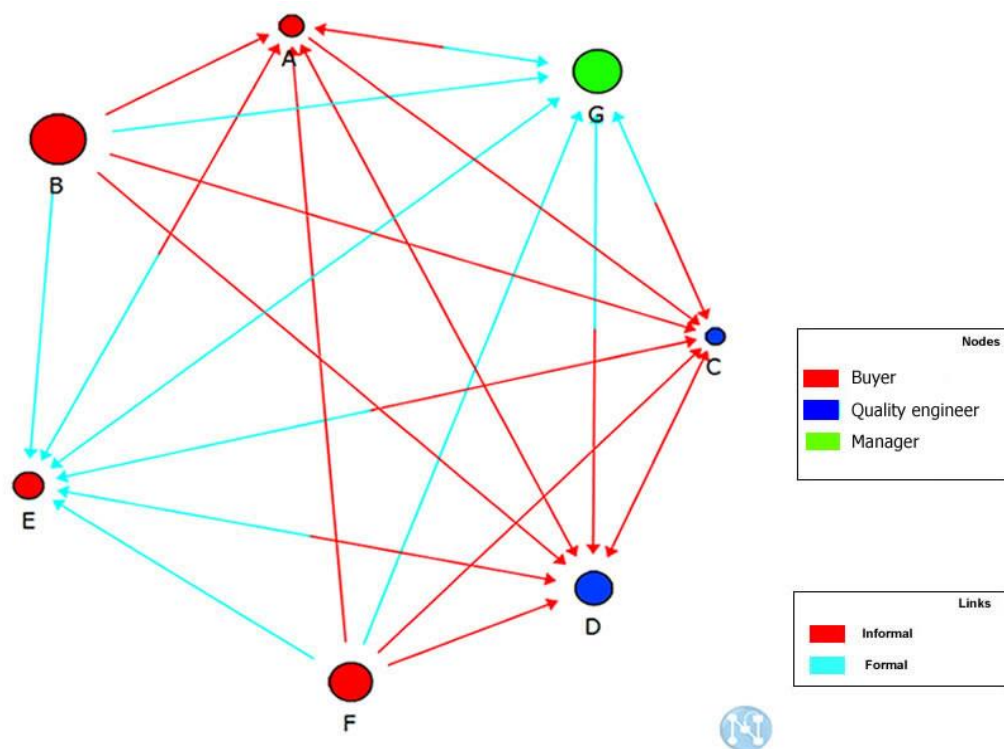


Figure 5.9 Information sharing network case 1B



5.10 Informal / formal network in case 1B

Figure

From Figure 5.10, the informal / formal network in case 1B illustrates that there are more informal relationships in case 1B than there are formal relationships. It is interesting to note that the formal relationships are mostly generated to the manager (participant G/1B) and one of the colleagues whom was identified as not proactive, participant E/1B.

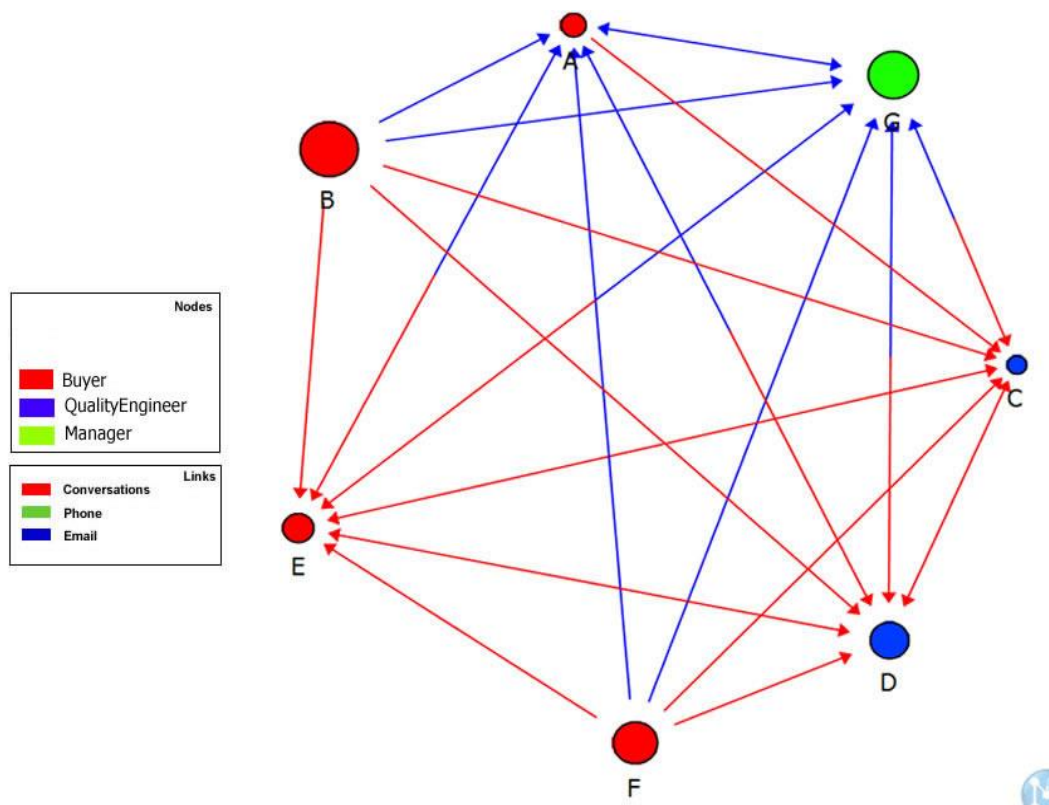


Figure 5.11 Communication channel network in case 1B

Figure 5.11 shows a prevalence of conversations again as the preferred method of communication among members, but also a reasonable amount of email communication as well, with no phone communication at all. It is possible that the increased use of emails in this department is because of the nature of the job, which requires keeping records of dealings with suppliers and passing them on to colleagues for follow up.

Network Properties

Table 5.12 Network properties in case 1B

	Case 1B
Density	0.69
Reciprocity	0.45
Total number of links	29
Ratio of Formal / Informal ties	0.70
Most used communication channel	Conversations
Most prominent relationship among members	Team members
Number of mutual links	9
Cutset	A,C,D,E,G
Diameter	2

In case 1B the network density is a little lower at 69% and we can deduce that it will have a lower reciprocity from the first network since they have the same number of nodes. Reciprocity of less than 50% one could argue is not good enough for sustaining information sharing in the department. From a possible total of 42 links, there are 29 links in this department, while the density is not too badly affected, the number of missing links, 13 is not exactly negligible, and in a small department like this, it should be less, to maximise information sharing.

The result of the frequency matrix for formal / informal relationship in case 1B; the informal relationships are just a little more than the formal relationships. The frequency matrix for the communication channels in the networks indicates that conversations are the preferred method of communication.

Central Information Sharing Individuals

Table 5.13 Network properties of central actors in Case 1B

	Case 1B			
	B/1B	F/1B	G/1B	Combined
No. of links	5	5	8	18
Reciprocity	0	0	1	0.286

In case1B, using the cutset as a starting point to analyse the central actors would be misleading, as there are actors that have high out-degree and little or no in-degree in this network, meaning they share information, which is desired in the networks, but people do not share information with these actors. Actors like this will not be included in the cutset but obviously have the high information sharing tendencies that we are trying to identify.

So the active information sharers in case 1B have been identified solely by using their out-degree and centrality in the network. Again there are three of them, with two being transmitters (i.e. not having any in links) and the other actor having both high in-degree and high out-degree, these actors are B/1B, F/1B, and G/1B.

Table 5.13 reports the network properties of the ego network of the neighbours who have an out-relationship with central actors in case1B. Actor G/1B has four out-links with neighbouring actors which they reciprocate to give eight links in total. It has a reciprocity value of one, which shows that actor G/1B receives information from everybody he shares information with.

Table 5.13 also reports the network properties of the ego network of neighbours who have a relationship with actor F/1B. Actor F/1B has five out-links with neighbouring actors, of which they reciprocate none to give a total of five links. It has a reciprocity value of zero, which can already be calculated from the amount of links that are reciprocated to actor F/1B.

From the network properties of the ego network of neighbours who have a relationship with actor B/1B, actor B/1B has five links with neighbouring actors, of which they reciprocate none to give five links in total, and it has a reciprocity value of zero.

Actor G/1B has four links with neighbouring actors, the neighbouring actors return six links to give nine links in total, and it has a reciprocity value of 1 with other actors.

Table 5.13 also shows the results of the network properties of the combined network connections of all three actors B/1B, F/1B, G/1B and together they are involved in 18 of the 29 links that exist in the entire network which is just over 60% of the total network connections. While these are the central actors in this network, compared to actors in case 1A, they have fewer links, and this is because information sharing with two of the central actors is not reciprocated. This shows that while proactive individuals can make a huge difference in the network, it is not enough, so colleagues need to be willing to be active in sharing too, in order to boost the information sharing network and sustain information sharing in the long term.

Factors that Influence Proactive Information Sharing Behaviour

The same factors that were identified during the field study were included in the online questionnaire to test the hypotheses, to explore how much influence these factors have on proactive information behaviour, the results are discussed below.

Proactive Personality / Proactivity

Hypotheses 1: A proactive personality would increase the chances of individuals sharing information actively.

Table 5.14 Correlation of proactive personality and information sharing in case 1B using Spearman's rho (ρ)

	Transposed(Actively Sharing(Merged))	Transposed(Proactive Personality network)
Transposed(Actively Sharing(Merged))		
Transposed(Proactive Personality network)	0.9	

Count = 42, valid 100%

(P >= observed) = 0, (P == observed) = 0, (P <= observed) = 1 (based on a 100000 permutations)

The same questions and techniques that were used to assess proactive personality against information sharing behaviour in case 1A are used here too. Table 5.14 shows the result of the correlation and the result of the random permutations of the correlation. The result shows a strong support for the hypothesis in case 1B; from the random permutations, the probability that they generated a value as extreme or more extreme than the observed statistic is zero, and hence the observed value could not have been gotten by chance. This result again would be explored in-depth in further data collections.

Wellbeing

This hypothesis was introduced after the initial analysis of results from case 1A.

Hypothesis 2: An individual's perceived positive wellbeing increases their will to share information.

Table 5.15 Correlation of wellbeing to information sharing case 1B using Spearman's rho (ρ)

	Wellbeing	Out-Degree
Wellbeing		
Out-Degree	-0.205	

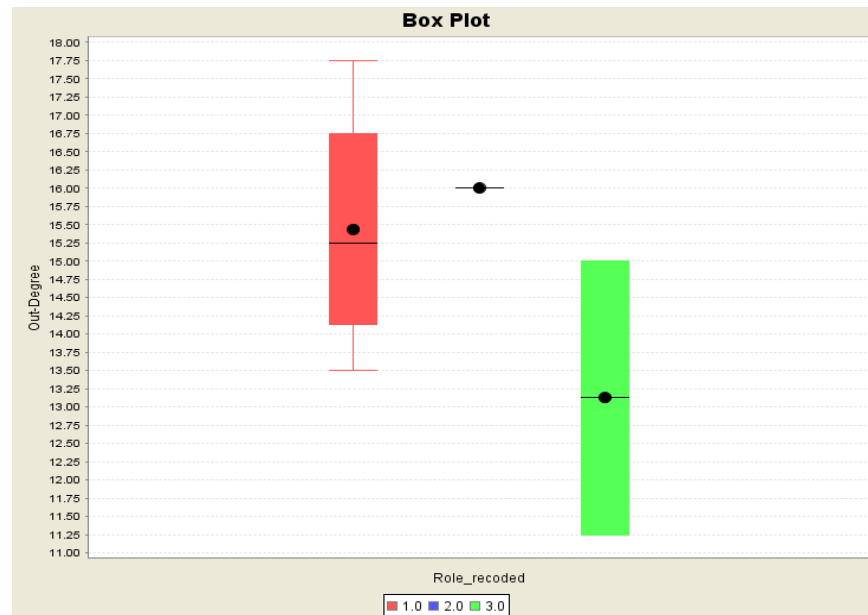
Count = 7, valid 100%

($P \geq$ observed) = 0.956, ($P =$ observed) = 0.011, ($P \leq$ observed) = 0.055 (based on a 100000 permutations)

This was checked by relating the self-given wellbeing score to the out-degree score on the information sharing network, which indicates an actor's tendency to share information in the network. This was done by generating an in-degree and out-degree matrix of the information sharing network, and adding it to the initial attribute table, then the wellbeing value was correlated with the out-degree value. Significance is checked here with QAP and it shows a negative correlation with the out-degree which represents the information sharing capability of the actor. Random permutations again show that the probability of getting a value equal to this is very low (0.011), and probability of getting values lower and higher are 0.055 and 0.956 respectively. While this does not show a strong enough support for the hypothesis, it is pertinent to point out that the data count for this hypothesis test is very low (7) compared to the numbers used in other tests.

Role

Hypothesis 3: An individual's role in the organisation affects how they share information



1 = buyers, 2 = Manager, 3 = Quality engineers

Figure 5.12 Roles and information sharing case 1B

In case 1B, the roles were divided into management, buyer (or purchaser) and quality engineers. To test the hypothesis, actors in a particular role were checked for a higher tendency to share information, which is their out-degree in the information sharing network.

The box plot in Figure 5.12 supports the indication that the manager has a higher information sharing tendency than the others. The buyers also have a higher mean out-degree than the quality engineers. While this supports the hypothesis, the QAP values of the random permutations of the anova test carried out, again was undefined, it generated a small F-statistic 1.52, which does not show a significant difference in the means.

Formal / Informal Relationships

Hypothesis 4: Colleagues that share informal relationships have a higher frequency of information sharing.

Table 5.16 Test for difference in informal / formal relations in case 1B

Observed	(mean)	Std. Dev.	P (>= Observed)	P (== Observed)	P (<= Observed)
116.391	1.304	2.33	0	0	1

Count = 42, Valid = 100% (based on a 100000 permutations)

The observed F value in case 1B is large positive which illustrates a significant difference in the means of the out-degree values of informal relationships and formal relationships in the network. From the permuted matrices the mean F value in case 1B is low, and the likelihood of getting a value as extreme or more extreme that the F value observed is zero, this means dropping the alternative hypothesis and acknowledging support for the original hypothesis.

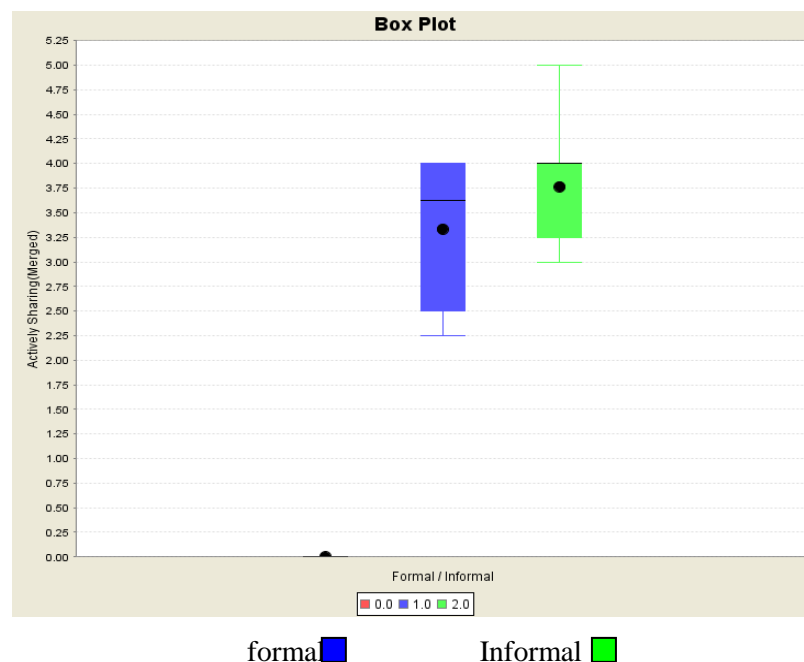


Figure 5.13 Formal / Informal links and proactive information sharing in case 1B

The box plot in Figure 5.13 also illustrates that in case 1B, the informal relationships have a higher tendency for sharing information, and case 1B has more informal relations.

Trust

Hypothesis 5: There is a higher tendency for individuals to share information with colleagues they trust in the organisation.

This hypothesis was included in case 1B after analysing data from case 1A. This test was carried out by removing the asymmetric relationships in the network to allow for proper correlation between the values, because the values in the trust network had to be transposed to correlate it with the information sharing network.

Respondents were asked to state those that share information with them, and they were asked some questions about these people based on trust, so to test this hypothesis only those colleagues who share mutual relationships were used, so that the trust value and information sharing value can be properly correlated. Table 5.17 shows the result of the correlation using spearman's rho (ρ), and this was carried out for only case 1B.

Table 5.17 Correlation of Trust and Information sharing in case 1B using Spearman's rho (ρ)

	[T] Trust_Merged	Transposed(Actively Sharing(Merged))
[T] Trust_Merged		
Transposed(Actively Sharing(Merged))	0.24	

Count = 20, Valid = 100% (P >= observed) = 0.042, (P == observed) = 0.008, (P <= observed) = 0.966 (based on a 100000 permutations)

The result is a low correlation between trust and actively sharing information and the QAP test shows that the random permutations mostly had values less than this, and the values for the probability of having value as extreme or more extreme as that observed are 0.008 and 0.042 respectively. This suggests the result is significant, but the correlation is low, and it is important to note that the removal of the asymmetric relationships resulted in

more than half the ties being removed, and hence this test was carried out with only 20 counts of data.

Findings from Interviews

This section follows on from the exploratory findings from the SNA, no changes were made to the interview questions that were administered to participants in case 1A, because participants from both cases were interviewed simultaneously. From the initial seven participants that took part in the online questionnaires, only four participants (A/1B, B/1B, C/1B, and D/1B) were available to take part in the interview stage of the study.

Findings from Interview Stage

The same issues that were addressed in the interviews in case 1A, were also addressed here: **Job satisfaction, Cooperation, Sense of Involvement, Past experience, Proactivity, Trust, External pressure Role, and Well-being, Motivation, Outcome, Barriers.**

The findings are presented in the different categories in this order: General factors, emotions, power relations, context and process. The general factors are divided into direct and indirect factors and the next section looks at the direct factors that influence information sharing.

Factors that Influence Information Sharing Directly

Similarity and Definition of Roles

Researcher: *How much do feel part of the activities that go on in the department? You selected a nine here, could you talk through what was on your mind here?*

“Like I mentioned in the other question, I think because we are a small department, we have well defined roles, however we have the ability to cover for each other, so that the level of involvement is very high within the office.” – Participant A/1B

Researcher: *You said, having an open office plan helps information flow between you and the engineers, how does this work, are the engineers in the same office as well?*

“The quality engineers are in with the buyers, typically if there is an issue with quality for instance, then the quality engineer will look at that issue, and then liaise with the supplier and inform the buyer of what has been done or what has happened. But then typically we will try and solve the problem together, but because other buyers are there, they may have already dealt with the supplier in the past or they may have had a similar experience with a different product.” – Participant A/1B

Participant A/1B is drawing attention to the point that they are able to cooperate and share information more because their roles **overlap in terms of their duties**. These roles also need to be **well defined** to make it easy to identify who might need what information. This is a bit of a paradox, but it makes sense. Being able to identify who is in charge of a particular task makes it easier to pass on what information they might need, but to be able to come in contact with information they might need, the sender's role would need to have a certain level of overlap with the recipient's role.

Researcher: *How well do you feel you share work related information with your colleagues?*

“It is along the same range, but a little bit less, because my function is a little bit different from some of the others in there, they do not need the detail that I have, they need the overview.” – Participant C/1B

Researcher: *How well do you feel your colleagues cooperate with each other?*

“There is conflict between roles, as I am a quality engineer and we work closely in the same office with the buyers who mostly want to get things for cheap and we want to ensure quality.” – Participant D/1B

Researcher: *How much do you feel part of the activities that go on within the department* *“My manager is a buyer and so I get involved late in most decisions taken.” – Participant D/1B*

Participant C/1B gives further insight into the relevance of similarity between roles, as he gives certain people an overview and others the details of the information based on the similarities between roles.

Participant D/1B draws attention to the contradicting nature of the roles for him and some of his colleagues, and this is down to the **structure of the organisation**, keeping two roles that aim to achieve slightly different goals together in the same department. Participant D/1B also mentions that differences in roles, makes him less involved in the department, since there are **differences in objectives** between him and his manager, who was promoted from a different role.

Past Experiences

Researcher: *How much do you feel your past experiences with colleagues affect your willingness to share information with them; you selected an eight, could you talk me through what's on your mind here?*

"Again I think it has got to be fairly high, I am trying to think of an example, I mean certain aspects you may have a disagreement, so you may not transfer information cleanly or appropriately at the time." – Participant A/1B

Researcher: *How much do you feel your past experiences with colleagues affect your willingness to share information with them?*

"If they have left a bitter experience, you would not want to relate in the same way next time, but you have to." – Participant B/1B

Researcher: *How much do you feel your past experiences with colleagues affect your willingness to share information with them?*

"Does not really matter, you have to share." – Participant D/1B

Participants A/1B and B/1B accept that the **outcome** of a past information sharing experience can affect how they share information and relate with a colleague in the future, but participant D/1B says it does not really matter. The assumption here is that Participant D/1B is referring to a colleague's information request, but in terms of being proactive like participant A/1B and B/1B are referring to, the negative past experience will make them do things differently, and be perhaps less **willing**.

Proactivity

Researcher: *How proactive do you feel you are in your work role?*

"Role makes me less proactive, but as a person I am more proactive." – Participant D/1B

Researcher: How proactive do you feel you are in your work role?

“We try to be proactive as much as we can, but there are company strategies or rules and regulations that we have to adhere to and follow, and It is not always easy to keep trying to come up with something to be proactive with, because there are guidelines to stick to.”–

Participant A/1B

Researcher: Has there been a time when you have been less proactive?

“No I think everybody tries to be proactive it is just...probably could have given that a 10, but it is the fact that sometimes you do not get the opportunity to be proactive because things cannot change quickly.” – Participant A/1B

Participant D/1B points to the fact that his **role** restricts his level of proactivity, even though as a person he feels he is proactive. Participant A/1B mentions how the **organisational policy** sometimes stifles his attempts to be proactive, and it is also not easy **coming up with ideas**, because they need to follow regulations, and it is hard for things to change.

Researcher: Has there ever been a time when you have been less satisfied with your job?

“It is the ability to do the job, if you are not given the resources or the tools, resource could be people, resource could be equipment, or information. If you are not given the resource to do the best job, then that is why, I do not feel satisfied with the job.” –

Participant C/1B

Researcher: How happy are you with your job? You selected an eight, what do you think would move you closer to a 10?

“It is those little things, still a lack of resource currently, categorically I mention it to my manager on a daily basis, so that is if you cannot get there purely because of time that is actually worse than not having a tool, when time is the only thing, that gives you a worse feeling than if you have not got a ten thousand pound piece of measuring equipment. I can see why I have not got a ten thousand pound piece of measuring equipment, because it is too expensive, we have not got the money. But time, that should be easy obtain.”–

Participant C/1B

Researcher: How happy are you with your job?

“There is a lot of politics and the department is under resourced.” – Participant D/1B

Researcher: How proactive do you feel you are in your work role?

“Proactivity, it is part of the job, but again because of limited resources, we tend to be firefighting most of the time and not being proactive.” - Participant B/1B

All the participants in the interview, with the exception of participant A/1B, complained about **lack of resources** like time and equipment, and this goes on to affect their satisfaction with the job.

Proximity of Colleagues

Researcher: Has there been a time when you have not shared information with colleagues?

“I think maybe the lowest sharing time was probably when a small group of us where in another part of the building, so the group was not always in that single room. Whether it is a single room or not is not a big issue, but proximity, and we were down the corridor and several offices away it is not quite the same. I think that probably would have been a bit lower then, not much maybe 5 or 6.” – Participant C/1B

Though this point was mentioned only by participant D/1B, it is included here because it has a direct impact on proactive information sharing, as he points out. From the SNA findings, participants prefer to share through conversations, so if a colleague was not close by it makes it harder to proactively share with them.

Reciprocity

Researcher: How much do you feel that trust influences your sharing information with colleagues?

“Because we know each other very well, I don’t think there’s any issue at all with information going out or coming back to me.” – Participant A/1B

This again is another factor that has a direct influence on proactive information sharing, and participant A/1B adds that it is because they know each other well, which leads to **trust**, that makes it easier for them to reciprocate information sharing.

Role

Researcher: How much do you feel your role affects your information sharing with colleagues?

“The role does mean that we have to share information on a daily basis, I mean it is the sharing of information every minute of every day basically internally within the department.” – Participant A/1B

Researcher: How much do you feel your role in the department affects your sharing information with colleagues?

“My role is the reason why I have to share information with people, if I was in a different role, I would not share as much.” – Participant B/1B

Researcher: So would you say sharing information is more about who you are or just because of your role?

“I think it is because of the role, if you were not open to passing information and actively pushing information around, you could not be doing the job properly, so I think it is more of business procedure.” – Participant C/1B

Researcher: How much do you feel your role in the department affects your sharing information with colleagues?

“Defined by my role slightly, but as a person, quite prepared to share.” – Participant D/1B

The above quotes all make reference to the importance of their role, in being proactive with sharing information. However there is an interesting contrast between Participants B/1B’s and C/1B’s comments, participant B/1B feels that in another role they would not be as active and share proactively, while participant D/1B feels that regardless of the role, he is prepared to share, though it is defined slightly by his role.

Researcher: Is sharing information with colleagues a function of your role or regardless of the role you would always share information?

“Yes I think as far as that is concerned, then yes I am not influenced by that, that is what I am that is what I do, I find it easier that other people know everything, ok, at times people might not get what they want when they want it, but sometimes you have to make sure that you present the correct information, I think in that respect then the role is not the influence, primarily on being a buying role, that is what I am that is me.” – Participant A/1B

When questioned further about the influence of his role in sharing information proactively, participant A/1B changes his response to say, that it is his personality that makes him to share proactively. It seems that participant D/1B’s response about proactive information sharing being defined partly by the role and partly by his personality, fits the argument most.

Use of Relevant Technology

Researcher: What do you think could be done to improve information sharing in your department?

“We have a central place on the network drive which has real key pieces of information which is companywide and has to be recorded and kept for a very long time that tends to be on the network. It is more the minute to minute things; you know the things that you would drop a couple of emails into a folder, I will come back to that later. But if I need to

know that, people say I would send you those emails, but if you told me where they were, you would not need to send them.”– Participant C/1B

Researcher: What do you think could be done to improve information sharing in your department?

“I would certainly think the one about the email is a practical thing, it’s quite simple, I know businesses that do it, they have a central pool of folders within a group of people, whether its two people four people or ten people, it does not really matter.”- Participant C/1B

Participant C/1B is the only one who makes the point about using technology to assist in information sharing. Not just emails, but having a shared system where more detailed information can be shared.

The next section gives an overview of the factors that affect proactive information sharing indirectly, under the following sub headings: **Indirect factors, Emotions, Power relations, Process and Context.**

Indirect Factors

Some of these factors have come up while discussing the direct factors and they were highlighted in bold: **Lack of resources, organisational policy, differences in objectives between colleagues and management.** These factors would not be elaborated on further as the quotes from the direct factors have given a good insight into them already.

The other indirect factors that have not been mentioned while discussing direct factors are: **Size of team, open office design, personal mood, trust, outcome, and responsibility.**

Size of Team

Researcher: *How well do you feel your colleagues cooperate with each other?*

“I think we do cooperate very well, I think we are a very close knit team, within the office.” – Participant A/1B

Researcher: *How well do you feel your colleagues cooperate with each other?*

“That cooperation part on the departmental level, works quite easy, a little bit less when it is spread out to a wider audience, obviously the further you are away the less communication you have, then the harder it becomes.” – Participant C/1B

Researcher: *Has there ever been a time when cooperation has been lower than this?*

“No! I think that cooperation thing is quite good, because the group is only eight or nine people, so it is quite small.” – Participant C/1B

Participant A/1B and C/1B suggest that having a small team of people makes it easier to cooperate and hence share information. Participant C/1B believes that the further away people are the harder it is to communicate, this goes back to the **proximity of colleagues**.

Researcher: *How well do you share information with colleagues? You selected a nine; can you talk me through what is going through your mind here?*

“Again I think because it is a small office, the sharing of information is good, because you can talk openly in the office about an issue or a problem or asking for help or whatever.” – Participant A/1B

Researcher: *So you think having an open office space helps with information sharing?*

“It does, in a type of small, close knit group that exists now. I do not believe it works on a larger scale, because you hear too much information, that has got nothing to do with you, so it can become an overload.” – Participant C/1B

Participant A/1B points out that being in a smaller group makes it easier to have an open discussion within the group, and participant C/1B believes that in a bigger group open discussion can lead to **information overload**.

Open Office Design

Researcher: *Do you think there are any barriers that stop you from sharing information?*

“I probably think the openness of the office can be a barrier, not for passing of information; it is a barrier because it prevents you doing something because there is too much activity, essentially being distracted by a lot of other things.” – Participant C/1B

Researcher: *How well do you feel your colleagues cooperate with each other? You selected a nine, what was your thinking here?*

“I think it helps with the fact that it is an open office, and there is more often than not, open discussion, and most of us welcome any help or assistance from colleagues.” – Participant A/1B

Researcher: *Do you think there are any barriers that stop you from sharing information with colleagues?*

“I do not think there is any barrier at all, it might come down to the fact that we have got an open office, and there is open discussion. If I am talking with one of the quality engineers on a certain problem and one of the other buyers or one of the other quality engineers has an idea or can offer information, usually if it is not in a closed meeting room, if its open within the office then I think we are all thankful.” – Participant A/1B

Researcher: *How well do you feel your colleagues cooperate with each other? You selected an eight, could you talk me through what was on your mind here?*

“Cooperation in our particular department, because it is an open office. Information moves around, and you hear it whether you intend to hear it or not.” – Participant C/1B

Participant C/1B gives insight into the downside of having an open office design; he thinks it could lead to being distracted. Participant A/1B looks at the positives and points to the fact that having an open office design leads to **open discussion** and makes it easier to seek information, which could also be linked to the **proximity of colleagues**.

Personal Disposition

Researcher: *How much does your personal disposition and wellbeing affect your willingness to share information? You selected a seven, what are your thoughts here?*

“Because yes we can say willingness to share is a hundred percent to share information, however that information needs to be accurate, and therefore yes there is willingness but I am also aware that it is not always presented without any thought or anything behind.” – Participant A/1B

Researcher: *How much is your sharing of information affected by your own feeling of well-being?*

“Should be professional, but if busy, less likely to give a response, pressure can affect your wellbeing, high work, low morale.” – Participant D/1B

Researcher: *How much is your sharing of information affected by your own feeling of well-being?*

“Yes it does affect me in terms of not being too enthusiastic about it, but in the end I still have to so it’s fifty-fifty.” – Participant B/1B

Participant A/1B points to the fact that a low personal disposition can affect the accuracy of the information that he passes on, and participant D/1B admits that pressure on the job can affect his wellbeing, which in turn affects his morale. Participant B/1B on the other hand says it affects his **enthusiasm**, but he still has to push himself to share information.

Researcher: *You selected an eight for job satisfaction, what was your thinking here?*

“I cannot say anything really, yes I am satisfied with the job, but I also would like to move on, whether it be within the department or a different department, so I will be constantly looking for improvement.” – Participant A/1B

Researcher: *How happy are you with your job?*

“I do not feel there is room for progression in the job, but with the current climate, I am happy with it.” – Participant B/1B

Researcher: How happy are you with your job?

“There is a lot of politics and the department is under resourced.” – Participant D/1B

Researcher: How much do you feel part of the activities that go on within the department?

“My manager is a buyer and so I get involved late in most decisions taken.” – Participant D/1B

Participants A/1B and B/1B highlight their **need for improvement** on the job, which goes on to affect their **satisfaction** with the job and in turn their disposition. Participant D/1B's satisfaction on the other hand is affected by **organisational politics**.

Trust

Researcher: How much do you feel trust influences you sharing information with colleagues? You selected a 10, what is the thinking here?

“Not trust on a personal level, business trust, you trust that when you say this information relayed correctly or when they give you a piece of information, its accurate, otherwise you end up having to second guess the information which wastes time for a start.” – Participant C/1B

Researcher: So is this trust in their abilities or their person?

“I think trust in their abilities more than anything else; on a personal level I do not think that actually has much... I think if their business abilities are trustworthy then that is fine, that is all I need to know, anything else is not that relevant.” – Participant C/1B

Participant C/1B's quotes show that he does not really bring personal trust into the work place, all he cares about is **business trust**, which is trust in his colleagues' competency, and by default he has business trust in all his colleagues.

Researcher: How much do you feel trust influences you sharing information with colleagues? You selected a 10, what is the thinking here?

“Yes I think it is very important, I think when you gain a level of trust from your colleagues, then you are more open to sharing information, and maybe offering a little bit more than you would do if you are unsure as to the person’s ethics or something like that.”

– Participant A/1B

Researcher: How much do you feel trust influences you sharing information with colleagues? (Continuation of question above)

“Again guys that have not been in the office that long, have come in and settled in very well, and we are part of a close knit team, so there is a lot of trust.” - Participant A/1B

Researcher: How much do you feel that trust influences you sharing information with colleagues?

“You have to share with them, but if you cannot trust them, the approach you take differs.”

– Participant B/1B

Participant A/1B points out that they trust each other in the department, because they are a close knit team, they are very **familiar** with each other and he feels he would offer a bit more, and **share openly** with colleagues he trusts, as opposed to a colleague he was uncertain about. Participant B/1B takes a more reserved view and says he would do things differently with someone he did not trust.

Outcome

The quotes below highlight the various outcomes of information sharing activities that individuals experience and look forward to.

Researcher: What are the outcomes that you expect when you share information with a colleague?

“I think that it is important that in some way shape or form that its acknowledged, whether it just be down to courtesy or the thank you or eye contact or whatever, but if you have taken time out to look for information or to pass information on, then I think it is important that you get some acknowledgement, but I do not openly look for one, but it does make it better.” – Participant A/1B

Researcher: How much do you feel that trust influences your sharing information with colleagues?

“It causes mistrust if you find that you are given false information.” – Participant C/1B

Researcher: Do you think there are any barriers that stop you from sharing information proactively with colleagues?

“I think mainly accurate information that is a barrier, because inaccurate information wastes time and demotivates you, and there is a big chain of events there, when the information is not accurate. Sometimes it is not accurate because the person giving you it did not know it was not accurate.” – Participant C/1B

Participant A/1B says that he does not seek any outcome, but getting **acknowledgement** would be a good outcome for him. Participant C/1B gives an example of a negative outcome, passing inaccurate information, which might lead to reduced **trust** (business trust in this instance).

Researcher: What are the outcomes that you expect when you share information with a colleague?

“Some of them are just out-going information without me necessarily needing a return, but it is still helpful if the person just sent an email or during a phone call, by the way that was good, that worked, I think it is a good thing to have a positive feedback.” – Participant C/1B

Researcher: What would you say motivates you the most to share information with colleagues?

“I would say that it comes down to solving problems, if you relayed information to a member of the office and they have come back with a solution or they come back to you with some information and together you can sort the problem out, then there is gratification in the fact that you have been able to sort something out. Problem solving does motivate.” – Participant A/1B

Researcher: What would you say motivates you the most to share information with colleagues?

“Like I said before, mainly seeing a solution, you know that positive feedback, something was not quite right, it is now, it works better, it is that feedback, it was worthwhile, it was worth the time, it was worth the effort, and there was a result. So that the best feeling.”-
Participant C/1B

Researcher: So finding a solution to a problem?

“Yes, finding a solution to a problem, something is better now than it was before.” –
Participant C/1B

Researcher: What are the outcomes that you expect when you share information with a colleague?

“I would like the outcome of sharing information to be the resolution of problems.” –
Participant D/1B

More of the possible outcomes, participant C/1B and A/1B refers to getting **feedback** as a positive outcome, and participants A/1B ,C/1B, and D/1B would all like the outcome of their information sharing activity to be **problem solving**.

Responsibility

Researcher: How much do you feel pressured into sharing information with your colleagues?

“There is no real pressure as such but the job does rely or expect that you will share information, even if it is not good information.” – Participant A/1B

Researcher: How much do you feel pressured into sharing information with others?

“There is always pressure that comes with the job but it is normal pressure so to speak.” – Participant B/1B

Researcher: How much do you feel pressured into sharing information with others?

“It is the pressure of time and effort to try and give that information out”. – Participant C/1B

Researcher: So in a sense its good pressure?

Yes, it is necessary, it is a business pressure, and it is not really a negative one. “– Participant C/1B

Researcher: How much is your sharing of information affected by your own feeling of well-being?

“Should be professional, but if busy, less likely to give a response, pressure can affect your wellbeing, high work, low morale.” – Participant D/1B

Researcher: How much do you feel pressured into sharing information with colleagues?

“I think there has to be some level of not necessarily pressure, expectation, that if you have information relating to an issue or a problem or a topic then you have the ability because you work in the department to share the information openly.” – Participant A/1B

The quotes above refer to the nature of the job, suggesting there can sometimes be a certain level of pressure to share information, and they all agree that this comes as **part of the job**. However participant D/1B does mention that high pressure can lead to having a **low morale**, and Participant A/1B in the last quote, mentions that there is a level of **expectation**, that colleagues would handle their responsibilities and share information openly.

Emotions

From discussing the direct factors, all of the emotions have been discussed, and they will not be discussed further in this section. They are: **Dissatisfaction with job, Expectation, Familiarity, Feeling the need for improvement, willingness, low morale.**

Power Relations

While there have been mentions of politics and how the organisational structure and policy affects information sharing, the references to power relations are; **organisational policy**

and politics and difference in objectives between management and members, and they have all been discussed.

Context

The factors that are particular to this case that either hinder or increase proactive information sharing have been discussed during the course of discussing the direct and indirect factors. These factors are: **Open office, Organisational policy, Resistance to change, Size of team**. The only other contextual issue, which comes from the social network analysis, is **communication channels**.

Process

The strategies that have resulted as a consequence of contextual factors or that individuals try to use to overcome some of the contextual barriers to proactive information sharing have also been discussed while discussing the direct and indirect factors, they are: **Coming up with ideas, Open discussion, Use of relevant technology**.

Summary of Findings on Case 1B

Summary of Interview Findings and Relationships between Factors

Figure 5.14 represents the summary of findings from the interviews and the relationships between factors that influence proactive information sharing behaviour, with the red rounded rectangles representing the direct factors and the blue rounded rectangles representing indirect factors. The direct factors are named on the first level, and the variations of that factor and indirect factors are placed in the second level, then the third level with purple fonts represent the affective factors that are associated with that factor. Finally, the contextual factors are represented in green rounded rectangles, and the relationships are named to describe how they influence each other, and in turn influence proactive information sharing behaviour. The narrative below connects all the pieces together.

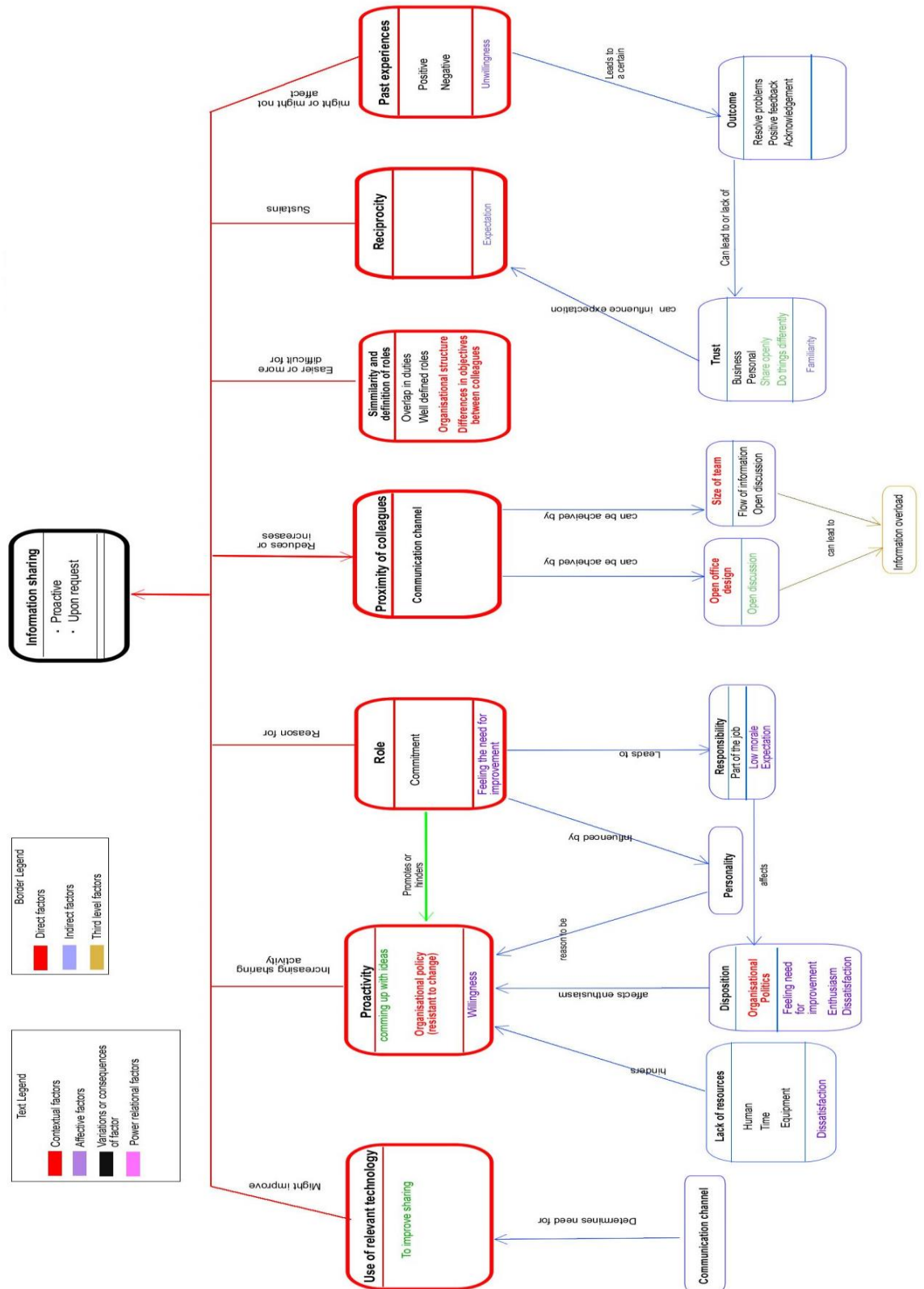


Figure 5.14 Relationships between factors that influence proactive information sharing behaviour in case 1B

Narrative for Direct Factors

The main factors that were identified to influence proactive information sharing behaviour are: **Similarity and definition of job roles, past experiences, proactivity, proximity of colleagues, reciprocity, role, and use of relevant technology.**

Similarity and definition of job roles seems to affect information in two ways; firstly the more dissimilar two colleagues roles are, the more need for them to share information, but with regards to proactive information sharing, colleagues find it easier to help out each other when they have similar roles, this way they know what colleagues' information requirements would be implicitly, which also increases their level of involvement within the group. With similar roles, there is bound to be some overlap, but proper definition of roles makes it easier for people to know who would need a particular type of information.

Past experiences can leave individuals feeling weary and cautious about how much information they share, but they have to share all that is requested of them as part of their job. So it affects proactive information sharing, but does not affect information sharing upon requests. **Proactivity** is at the centre of proactive information sharing, but it is influenced by many other factors that would be discussed in more detail in the second section of the narrative, some of them are: Organisational policy, lack of resources, and personal mood. Being proactive with information can bring about change, and depending on how colleagues receive the information, it can make the information sharer lose morale or feel positive.

Proximity of colleagues affects the timely flow of information, the further away a colleague is, the more difficult it might be to proactively share information with that colleague. This is probably due to the fact that their preferred way of sharing information in this case is by conversation and not via email. Proximity in this case is aided by an open office design in the department and a small close knit team, which makes it easier to have an open discussion.

Reciprocity helps sustain information sharing, but in this department is a result of trust between colleagues. Here trust could lead to openness and more willingness to share and it is dependent on the outcome of past experiences between colleagues. Another affective factor that helps reciprocity in the department is expectation from colleagues. People have a feeling of expectation that colleagues would share whatever information that may be useful to them, so in that anticipation they share what might be useful to colleagues.

Role has a significant effect on information sharing with regards to requests, but it also affects how much proactive sharing is carried out by individuals. The role could either bring with it, high or low responsibility, leading to a sense of expectation from colleagues, which should make the individual more proactive with information sharing. However the personality of the individual does influence how much proactive information sharing is done in the role, in some cases, while in others it is mainly the role that defines proactive sharing. The level of commitment that is put into the role is also important.

Use of relevant technology is perceived as a means to help improve information sharing, so colleagues do not have to request information all the time, and it makes it easier, for those who use it, to be proactive with information sharing. The lack of technology is also perceived to be a barrier to proactive information sharing and makes it more difficult to share information.

Narrative for Indirect Factors

These main factors as described above influence each other, but they are also influenced by other factors, which do not influence proactive information sharing behaviour directly:

Size of team, open office design, personal disposition, trust, outcome, responsibility, personality, lack of resources, organisational policy, and differences in objectives between colleagues.

Size of team affects how much communication goes on between colleagues, and affects how much cooperation they have amongst themselves. It is perceived that the smaller the size of the group, the easier it is to be able to proactively share information with colleagues and get information across. A smaller a group also promotes open discussion which is

viewed as a result of people being in close proximity to each other. A larger team in close proximity would lead to distractions, as people begin to hear what is not too useful to them.

Open office design can be both an aid and a barrier to proactive information sharing. It can lead to open discussions and more cooperation between colleagues, but in a large group of people, it can lead to information overload. **Personal disposition** affects some individuals with regards to their morale and how they get involved; it can also affect the accuracy of the information being passed on. While individuals try not to allow this affect them, issues like organisational policy and satisfaction with the job can lead to low personal disposition.

Responsibility which arises from the role is viewed in two ways by participants; some view it as part of the job and others think that it can bring about low morale and affects their personal mood. Some perceive **personality** to be one of the main reasons for the individual's information sharing activities, but others feel that it plays only a part, and the role plays a part as well.

Organisational policy is perceived to constrain proactivity, the participants have to abide by the regulations and follow the rules. Also because of these rules, things cannot be changed easily, so the participants feel there is no need trying to be proactive in the organisation. **Trust** has been divided into business trust and personal trust; personal trust does make people a little more open when they have to share. Business trust relates to trust in colleagues abilities, which is implicit but could change with *outcomes* of past experiences.

Outcome of an information sharing activity is viewed as a motivation for people to share information proactively, here in particular, solving problems and receiving positive feedback. **Differences in objectives between colleagues** can make individuals not too keen to get involved in activities in the department, which could include being proactive with information sharing.

Narrative for Emotion

The main affective factors that were identified from interview analysis are: **Dissatisfaction**

/ **satisfaction, expectation, familiarity, feeling the need for improvement, willingness / unwillingness, and low morale.**

Dissatisfaction is a feeling that can stem from a variety of issues within the organisation, but in this case it stems from a *lack of resources* within the group, to do their jobs. This could lead to the individual not putting in as much effort into being proactive in the organisation. **Expectation** is a feeling from colleagues that makes them believe that an individual would share information with them, which helps improve reciprocity, as people would expect each other to share, and do so themselves. This expectation is a direct result of the responsibilities which the role has afforded them, so the role determines the level of expectation.

Familiarity is a feeling that can lead to even more expectation from colleagues that are more familiar with each other, and will increase reciprocity between them. **Feeling the need for improvement** leads individuals to try to acquire more knowledge or seek improvement in their job roles, which will normally lead to either more responsibility in the current role or a new role.

Unwillingness in this case is as a result of people having negative past information sharing experiences with their colleagues. **Low morale** is a result of high responsibility in some cases, politics or just general disagreement between colleagues.

Narrative for Power Relations

For power relations, the factors were **organisational policy and politics** and **difference in objectives between colleagues**, and they have been dealt with in the indirect factors narrative.

Narrative for Context

The main factors that have been found to be part of the context in this case are:

Open office, organisational policy, size of team, organisational politics and organisational structure. Most of them have been discussed in the indirect factor narrative, and the others are explained below.

Organisational structure in this case is crucial because there are two main roles within the department that seem to have contrasting objectives that, at the very least, would cause some friction. **Organisational politics** in this case follows on from the effect of the organisational structure, because the manager of the department can only be from one of the two main roles, there is the belief that he might favour those in the role similar to his background.

Narrative for Process

The main factors that have been identified as part of the process are: **Coming up with ideas, open discussion, and use of relevant technology.**

Coming up with ideas to be proactive with, is difficult when there are rules and regulations in the organisational policy, to follow. So this leads to a lack of freedom, which inhibits proactivity because the individual is trying to conform to guidelines as opposed to making any change. **Open discussions** are good for proactive information sharing, it leads to increased information sharing between individuals, helps information to move around more and increases cooperation, and it is attributed to the group being situated in an open office. **Use of relevant technology** can make the process of proactive information sharing easier, thereby making it easier for proactive individuals to share and leads to increased willingness as well.

Consolidation of the SNA and interview findings

Having a proactive personality has a high correlation with individuals' proactively sharing information, but there are a number of other factors that hinder or promote individuals ability to be proactive with information, despite their personality. Other huge predictors of

information sharing behaviour are; role, resources (time, equipment, human) and organisational policy.

There is an open office design in this case, and a small closely knit team, which leads to colleagues having open discussions, and explains why their most used method of communication is conversations, although they have to send emails as well, because of the nature of their job. However the open discussions can also be a distraction and can lead to information overload.

Two of the three central actors in the network are transmitters, i.e. only sharing information and not receiving; it affects the density and reciprocity of the network. This shows that though a few proactive people can make a difference, others need to share information proactively too, to maximise the information sharing potential in the network, and sustain information sharing in the department.

Informal relationships have once again been shown to encourage and produce more active information sharing between colleagues, and in this case, it is about knowing people better and being more open. Being in a close knit team makes it easier for people to get along, and those that do, share information with each other more. Trust was found to have a low correlation with proactively sharing information with a colleague in this case, although participants admit that they might be cautious and do things a bit differently, they also say they would have no choice, but to share information as part of their job. Participants highlighted that as part of their responsibility, they cannot decide not to share information proactively as a result of not trusting a colleague.

Summary

This chapter presented the analysis of the data gathered from the two different cases in the first organisation used in this research study. Within each case there are variations of the factors that influence proactive information sharing behaviour and also similar factors between the different cases.

Social network analysis was used to analyse the quantitative data and grounded theory coding techniques were used to analyse the interview data. Netminer software was used for the social network analysis and NVivo software was used for the qualitative analysis. The nature of the data collected and the themes that were the focus of data collection was also described. The analysis was done in five categories; Direct and indirect factors, emotions, context, power relations, and process. Each category viewed the data from a different perspective, hence generating a richer picture of the evidence to support the findings.

The findings from the social network analysis were explained through the use of hypotheses, proved or disproved by the data collected. Network diagrams were also used to visualise the proactive information sharing environments in each case, along with other relationships like formal or informal links. Having a proactive personality, shows strong correlation with sharing information proactively, and sharing an informal relationship with a colleague, signified the tendency to share information more proactively with them.

The network also showed properties of the actors, like job roles and out-degree, which signified their level of proactivity. The three central actors in each case were identified from the network and together they made up a large proportion of the connections in the network. This supported the point that proactive individuals are very important to information sharing in organisations.

The interview data was analysed by going through the different stages of grounded theory coding techniques, with the exception of the final theory development stage. This helped to ensure that the findings are based purely on the data collected. The findings were explained under the aforementioned five categories and participant comments were used to highlight the different factors under each category. Some of the findings from the social network analysis, like proactive personality and informal relationships, were expanded in the interview analysis, and new findings emerged.

Having looked at the analysis of the data within each case in the first organisation, the next chapter looks at the exact same findings, but within the second organisation used in this study.

References

- Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." Journal of Organizational Behavior **14**(2): 103-118.
- Borgatti, S. P. and R. Cross (2003). "A Relational View of Information Seeking and Learning in Social Networks." Manage. Sci. **49**(4): 432-445.
- Borgatti, S. P. and P. C. Foster (2003). "The Network Paradigm in Organizational Research: A Review
- Drewberry, C. (2004). Statistical methods for organizational research : theory and practice. London, Routledge.
- Mosindi, O. and P. Sice (2011). Social Network Analysis And Information Systems In Organisations: Highlighting The Need To Understand Human Information Sharing Behaviour. UK Academy for Information Systems Conference. Oxford.
- Noreen, E. (1989). Computer Intensive Methods for Testing Hypotheses: An Introduction New york, John Wiley & Sons.
- Strauss, A. and J. Corbin (2008). Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory. Los Angeles, California, Sage Publications.

6 Voluntary sector case study outcomes

Introduction

This chapter describes details of the second organisation that was used as part of the study, exploring the organisational structure, the nature of the participants' jobs, and the internal culture of the organisation. Similar to chapter five, this chapter also discusses the variations and particularities of each finding within this case. A second organisation was chosen in this study; to understand how the findings generated might be different, compared to findings in the first organisation. For this reason, an organisation in a voluntary sector was chosen, to help expand the findings, and provide alternate explanations, where possible.

The findings from the online questionnaires and social network analysis are presented first. The results to the different relational and statistical tests are explained, to test the hypothesis about the data. The findings from the semi structured interview are then presented, factor by factor, showing evidence of variations of each factor and other issues related to a particular factor.

A summary of the findings from the interviews is then presented in the form of a narrative to help put the all the findings together in one picture. Finally, a summary of both findings from the social network analysis and the semi structured interviews are consolidated, where possible, to give a richer picture of the findings.

Company Background

The organisation is a small charity, with ten employees and trustees. It has a flat organisational structure, but the trustees generally have more influence on organisational strategy than the employees. The organisation's objective is to help young people in the community, through running various projects. One of the employees is a project manager, who is responsible for translating strategic decisions made by the trustees, to operational

actions, and acts as the link between the trustees and employees in the organisation. Figure 6.1 depicts the organisational structure of the organisation, showing the project manager as the bridge between the trustees and the other employees.

The charity started out by providing counselling services for kids and their parents or guardians, this proved to be successful and lasted for a few years. However due to the size of the charity and the need to secure funding for its projects, the charity sometimes has to change its objectives, to move with the times in order to get this funding. Though the organisation still strives to keep the general objective of working with children, it has taken on different directions and a different number of projects, including working with refugee children in the city where the organisation is situated.

The board of trustees do most of the work, in terms of trying to secure funding, and agree on the direction in which the charity should be going. When they secure a project, they might hire any additional expertise and manpower needed to carry out the project. So they hire employees as and when needed, for the duration of a project.

With time some of the trustees have moved into employee roles, to fill in and get paid, while working on these projects, but the trustee roles are primarily volunteer roles. The project manager attends trustee meetings, to help mediate between the trustees and the employees. He basically reports the progress of the projects back to the trustees; he is also in charge of actively seeking funding for projects, to ensure that the charity remains viable.

The trustee board meets once every fortnight, but sometimes not all members are able to attend, and they have to be kept up to date via email. Also in between meetings there are lots of emails sent, to keep everyone up to date with progress on the projects and issues discussed in previous meetings.

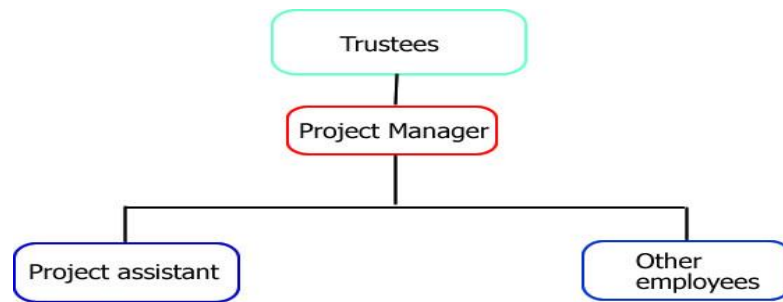


Figure 6.1 Organisational chart for case two

Participant Description

The research participants from this organisation volunteered to take part; they were approached through one of the trustees. They all agreed to take part in the study, trustees and employees alike. Table 6.1 gives information about the research participants' demographics, how long they have been at the charity, and their preferred communication channel.

Table 6.1 Participant background information from case two

Name	Age range	Gender	Role	Time at department	Preferred communication channel
Participant A/2	56-60	Male	Trustee	4 years	Phone
Participant B/2	56-6-	Female	Trustee	10 years	Conversation
Participant C/2	36-45	Male	Project support worker (Formerly chair of the board of trustees)	10 years	Email
Participant D/2	55-60	Male	Trustee	3 years	Conversation
Participant E/2	46-55	Male	Project manager	5 years	Email
Participant F/2	55-60	Female	Chair of Trustees	3-4 years	Conversation
Participant G/2	36-45	Female	Trustee	3 years	Conversation

The next section discusses the author's view on the participants who took part in both the online questionnaire and the semi-structure interviews which followed.

Authors View of Participants

Table 6.2 Participant background information from case two

Name	Social network summary	Motivation for sharing information	Type of relationship shared with colleagues
Participant A/2	His colleagues perceive him to be reasonably proactive, and shares information	Important that we are all up to speed with all the key issues	He has the highest informal relationship with colleagues than anyone else in the network, and has an equal amount of formal relationships too.
Participant C/2	Colleagues identified him as proactive, and shares information.	To keep colleagues updated with current news and future funding possibilities that may benefit the charity	He shares mostly formal relationships with his colleagues
Participant E/2	Colleagues have pointed out that he is the most proactive amongst them, because he always has to pass updates back to	He suggests that he shares information with colleagues mainly because it benefits him in his role	He shares mostly formal relationships with his colleagues.

	colleagues		
Participant F/2	She is seen by her colleagues as proactive and shares information	It is good if everyone is knowledgeable so that decisions made are of high quality	She shares mostly formal relationships with her colleagues and has two informal relationships.
Participant G/2	Colleagues did not think of her as very proactive with information	To help with the development of the charity	She shares a formal relationship with all but one of her colleagues

Outcome from Social Network Analysis

With the UK government's new policy of allowing free schools to be created through government funding, the organisation decided to apply for the funding and run a free school, keeping with the objective of impacting the lives of children. The organisation was in the process of securing funding for this free school project, when this research took place. The findings from the first stage of data collection are discussed next.

Network Diagrams

The same principles that were applied in generating the networks in case 1A and 1B are applied here. The network that is represented in Figure 6.2 is the proactive information sharing network, which is a combination of the "actively sharing", and the "information sharing" networks.

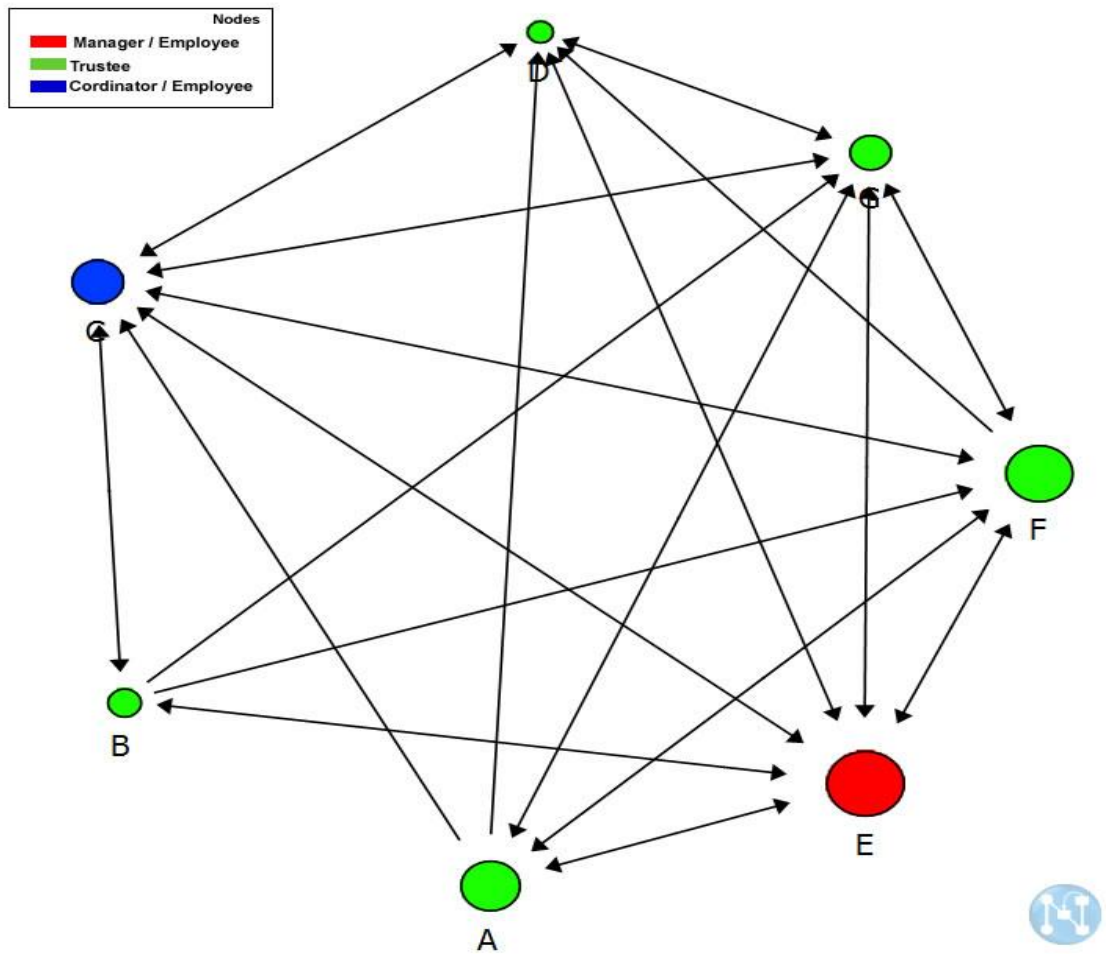


Figure 6.2 Information sharing network in case two

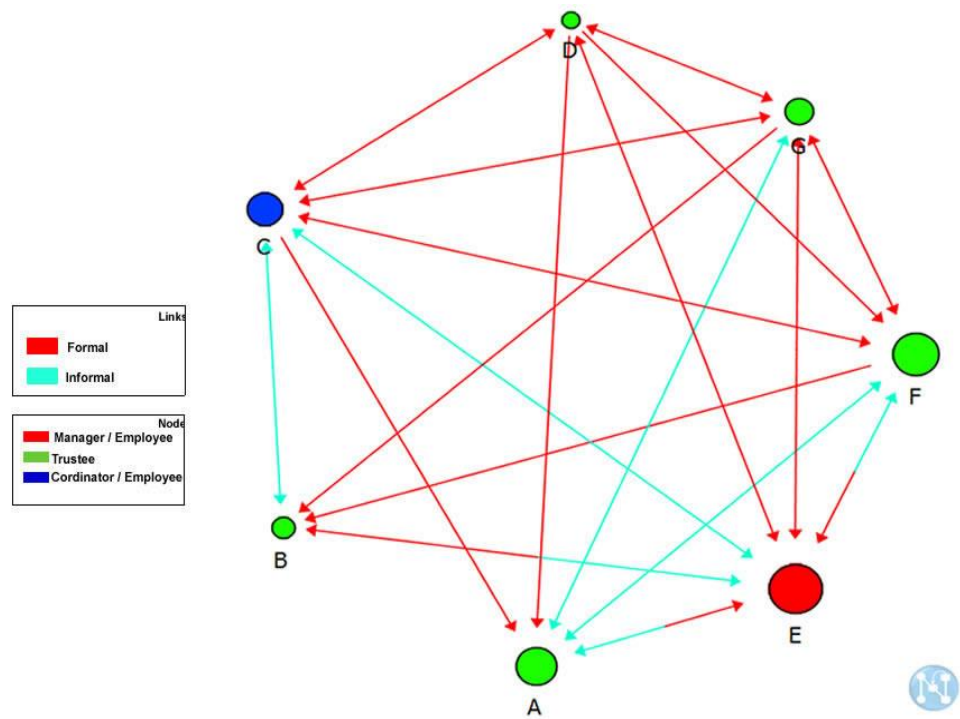


Figure 6.3 Informal / formal network in case two

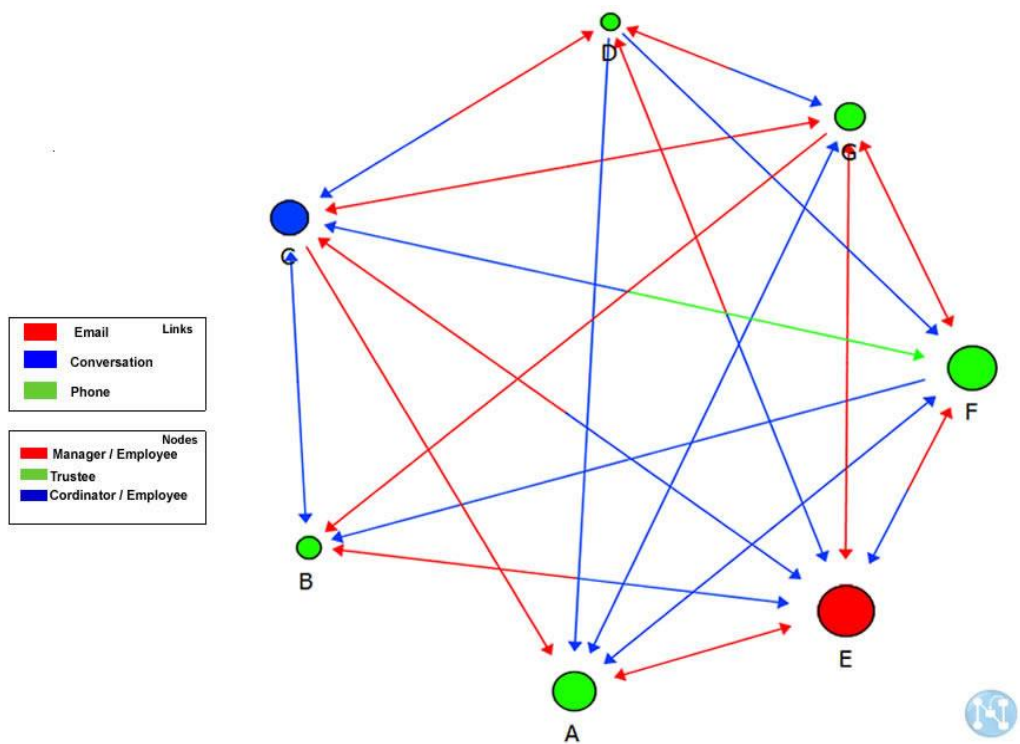


Figure 6.4 Communication channel network in case two

From Figure 6.3, the informal / formal networks in case two illustrates that there are more formal relationships than there are informal relationships. Figure 6.4 shows an equal split between the use of conversations and emails to share information, each accounting for just under half of the communications in the group. This is a result of the limited time that they have to spend with each other, hence the need for a lot of email conversations afterwards to follow up.

Network Properties

Table 6.3 Network properties in case two

	Department B
Density	0.786
Reciprocity	0.737
Total number of links	33
Ratio of Formal / Informal ties	2
Most used communication channel	Conversations / Email
Most prominent relationship among members	Team members
Number of mutual links	14
Cutset	C,E,F,G
Diameter	2

The network in case two has a high density at 78.6% and it can be deduced that it will have a high reciprocity since it has the same number of nodes as the other cases. Reciprocity of 73.7% is also very high, which is good for sustaining information sharing in the department. From a possible total of 42 links, there exists 33 links in this organisation. The number of missing links, 9, though not insignificant for such a small number of nodes, relative to the total number of links, it does not affect the density.

From the result of the frequency matrix for formal / informal relationship in case 2, the formal relationships are twice as much as the informal relationships, which shows that the actors in the network mainly share work relationships. The frequency matrix for the communication channels in the networks indicates that conversations and emails are the preferred methods of communication.

Central Information Sharing Individuals

Table 6.4 Network properties of central actors in Case two

	Case two			
	A/2	E/2	F/2	Combined
No. of links	8	12	9	24
Reciprocity	0.6	1	0.8	0.714

In case two the cutset includes two of the three central actors. The central actors are deduced from their out-degree values on the proactive information sharing network. This value is the average that is given to them by colleagues in terms of how active they are in sharing information. There are three central actors in the network, one shares and receives information from every colleague in the network, and these actors are A/2, E/2, and F/2. They are the nodes with the largest size in Figure 6.2

Table 6.4 reports the network properties of the ego network of the actors who share an information relationship with central actors in case two. Actor A/2 shares information with five neighbouring actors, of which three of them reciprocate to give 8 links in total. It has a reciprocity value of 0.6, which shows that actor A/2 receives information from 60% of those he shares information with.

Table 6.4 also reports the network properties of the ego network of actors who share a relationship with actor E/2. Actor E/2 has 6 information sharing links with neighbouring actors, of which they all reciprocate to give a total of 12 links. E/2 has a reciprocity value

of 1, which means he shares information with everyone and receives information from everyone.

From the network properties of the ego network of actors who share a relationship with actor F/2, actor F/2 has 5 information sharing links with neighbouring actors, of which they reciprocate 4, to give 9 links in total, giving a reciprocity value of 0.8, making it the second most connected node in the network.

Table 6.4 also shows the results of the network properties of the combined network connections of all three actors A/2, E/2, F/2, and together they account for 24 of the 33 links that exist in the entire network, which is about 73% of the total network connections. This indeed is a high proportion of the total network connections, but it is important to note that these figures include overlaps with the other actors' connections, which involve any of the central actors.

Factors that Influence Proactive Information Sharing Behavior

As in the first case, the initial factors which were identified during the field study were tested using online questionnaires, and the results are discussed below.

Proactive Personality / Proactivity

Hypotheses 1: A proactive personality would increase the chances of individuals sharing information actively.

Table 6.5 Correlation of proactive personality and information sharing in case 1B using Spearman's rho (ρ)

	Transposed(Actively Sharing(Merged))	Transposed(Proactive Personality network)
Transposed(Actively Sharing(Merged))		
Transposed(Proactive Personality network)	0.835	

Count = 42, valid 100%

(P >= observed) = 0, (P == observed) = 0, (P <= observed) = 1 (based on a 100000 permutations)

The same questions and technique used to assess proactive personality against information sharing behaviour in case 1B are used here too. Table 6.5 shows the result of the correlation and the result of the random permutations of the correlation. The result shows a strong support for the hypothesis in case two; from the random permutations, the probability that they generated a value as extreme or more extreme than the observed statistic is zero, and hence the observed value could not have been gotten by chance.

Wellbeing

Hypothesis 2: An individual's perceived positive wellbeing will increase willingness to share information

Table 6.6 Correlation of wellbeing to information sharing in case two using Spearman's rho (ρ)

	Wellbeing	Out-Degree
Wellbeing		
Out-Degree	0.5	

Count = 7, valid 100%

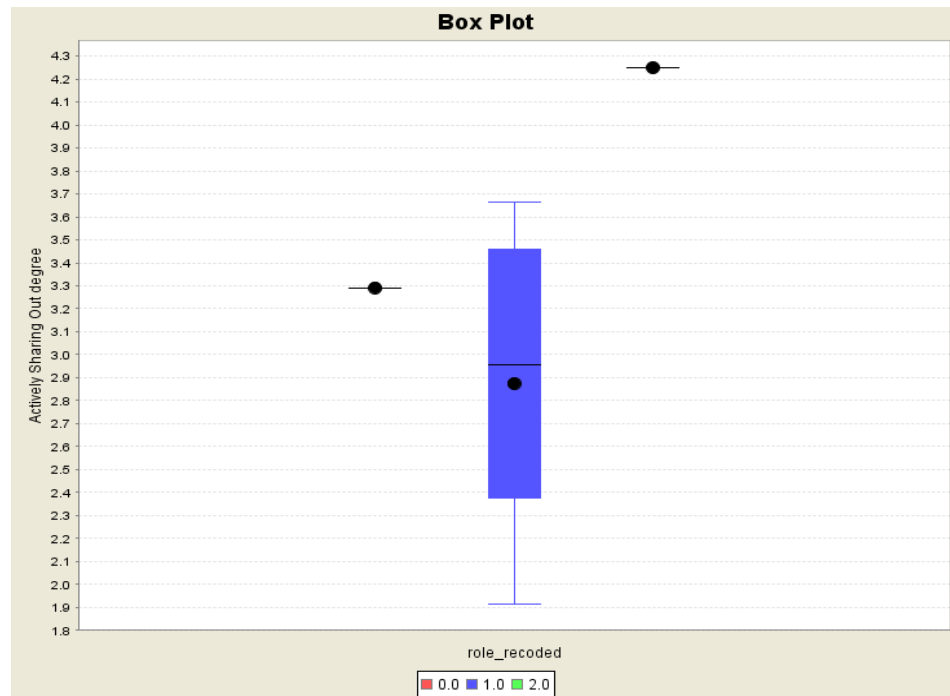
($P \geq$ observed) = 0.179, ($P =$ observed) = 0.015, ($P \leq$ observed) = 0.836 (based on a 100000 permutations)

This is checked by relating the participants self-given wellbeing score to the out-degree score on the information sharing network, which indicates an actor's tendency to share information in the network. This is done by generating in-degree and out-degree matrices of the information sharing network, and the wellbeing value is correlated with the out-degree value.

Significance is checked here with QAP and it shows medium positive correlation with the out-degree which represents the information sharing capability of the actor. Random permutations show that the probability of getting a value equal to this is very low (0.015), however the probability of getting more extreme values is 0.179. This does not support significance, and it is pertinent to point out that the data count for this hypothesis test was very low (7) and hence cannot be used as a strong argument to support the hypothesis.

Role

Hypothesis 3: An individual's role in the organisation influences how much they share information.



0 = Project support worker, 1 = Trustee, 3 = Manager

Figure 6.5 Roles and information sharing case two

In case two, the roles were divided into manager, trustee and project support worker. To test the hypothesis we check if actors in a particular role have a higher tendency to share information, which is their out-degree in the information sharing network. The data in this case does not lend itself well for this test, because in two of the categories, you have only one actor. This makes it difficult to make any reasonable comparison of averages.

While the box plot in Figure 6.5 seems to support the indication that the manager has higher information sharing tendency than the others, as pointed out before, the F statistic generated, 1.49 is low. The QAP values of the random permutations of the anova test carried out was undefined.

Formal / Informal relationships

Hypothesis 4: Colleagues that share an informal tie have a higher frequency of information sharing

The test here is similar to the one carried out in case 1A.

Table 6.7 Test for difference in informal / formal relations in case two

Observed	(mean)	Std. Dev.	P (\geq Observed)	P ($=$ Observed)	P (\leq Observed)
282.308	1.56	4.51	0	0	1

Count = 42, Valid = 100% (based on a 100000 permutations)

The observed F value in case two is large positive, which illustrates a significant difference in the means of the out-degree values of informal relations and formal relations in the network. From the permuted matrices, the mean F value in case two is low, and the likelihood of getting a value as extreme, or more extreme, than the F value observed is zero, this means dropping the alternative hypothesis and acknowledging support for the original hypothesis.

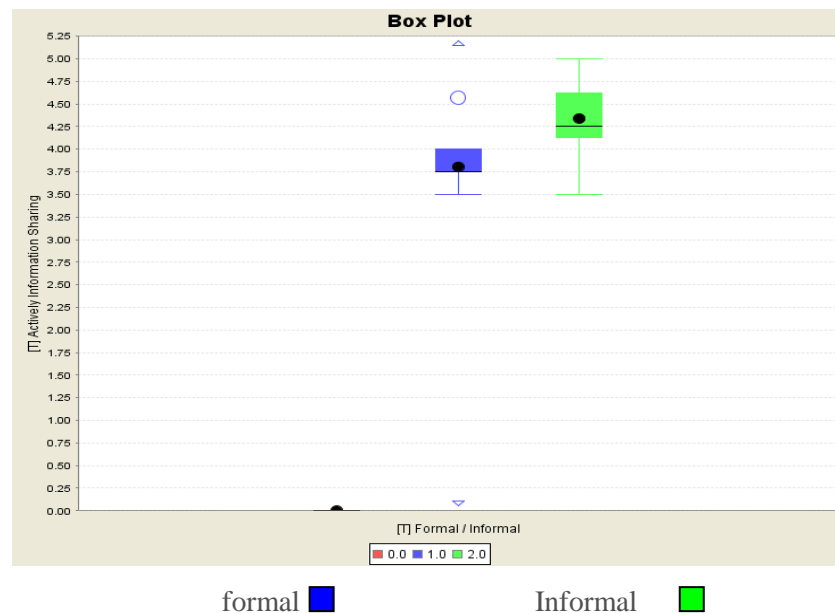


Figure 6.6 Formal / informal ties information sharing in case two

The box plot in Figure 6.6 also shows that in case two; those with informal relationships have a higher tendency for sharing information, even though in this case, there are twice as much formal relationships, than informal relationships in the network. This gives a very convincing support for the hypothesis, because despite how little the informal relationships are in the network, they still have a higher average out-degree of information sharing than the formal relationships.

Trust

Hypothesis 5: There is a higher tendency to share information with those that you trust in the organisation

This test is carried out by removing the asymmetric relationships in the network to allow for proper correlation between the values. Respondents were asked to state colleagues who share information with them, and they were asked some questions about these colleagues based on trust, so only those who share mutual relationships are used in this test, so that the “trust” value and “proactive information sharing” value can be properly correlated. After removing asymmetric relations, the transpose of the proactive information sharing network was taken and correlated with the trust network. Below is the result of the correlation using spearman’s rho (ρ).

Table 6.8 Correlation of Trust and Information sharing in case two using Spearman’s rho (ρ)

	Trust_Merged	Transposed(Actively Sharing(Merged))
Trust_Merged		
Transposed(Actively Sharing(Merged))	0.694	

Count = 20, Valid = 100% (P >= observed) = 0.00, (P == observed) = 0.00, (P <= observed) = 1
(based on a 100000 permutations)

The correlation here is a strong correlation and the QAP test shows that the random permutations mostly had values less than observed value. It is important to note that the removal of the asymmetric relationships results in more than half the ties being removed, and hence this test was carried out with only 20 data points. However, the test does support the hypothesis, and shows that in case two, trust does influence information sharing among colleagues.

After the social network analysis, qualitative data was collected using semi-structured interviews in the second organisation. Slight changes were made to the interview questions administered to research participants in case two, as some of the data from case one had been analysed already, the interviews in case two were used to further test some of the findings, and provide alternative explanations for others. From the initial seven participants who took part in the online questionnaires, only five participants were available to take part in the interview stage of the study. The outcomes of the analysis of the interview data are discussed next.

Analysis of Interview Outcomes

The same issues which were addressed in the interviews of case 1A and 1B were also addressed here: **Job satisfaction, cooperation, sense of involvement, past experience, proactivity, trust, external pressure, role, well-being, motivation, outcome, and barriers.**

The findings are presented in five categories in this order: General factors, emotions, power relations, context, and process. The general factors are divided into direct and indirect factors, and the next section analyses the direct factors that influence proactive information sharing.

Factors Influencing Proactive Information Sharing Directly

Recipient Understanding

Researcher: *How much do feel a part of the activities that go on within the organisation?*

“Sometimes things can be too much, you can be too informed.” – Participant A/2

Researcher: *How much do feel pressured by your colleagues into being active and sharing information?*

“Well I think you can get information overload, certainly with the free school there has been a lot of information overload, and sometimes we did not always get the full picture, and I do not mean that in a critical way, but you know, I suppose it is the information you have got. At times there has been too much of one type, and not enough of another.” – Participant A/2

Researcher: *How much do feel your role in the organisation influences you sharing information with colleagues?*

“Some people are not particularly interested in, I mean they are interested in the broad overview, but they are not interested in the details, so I suppose it is trying to get that balance between giving them enough information and not giving them too much.” – Participant A/2

Researcher: *You have mentioned a few times when you have been dissatisfied with your role in the organisation; does this affect your involvement in the organisation?*

“I suppose it could, I mean at times you feel overwhelmed by the amount of information and having to understand it is quite difficult to be involved.” – Participant A/2

Researcher: How well do you feel you share work related information with your colleagues, you put in an eight?

“I put in an eight because I think I share a lot of information, but I am perhaps not doing it very well, because I probably share too much information, I think things were much happier when I did not.” – Participant E/2

Researcher: So you are not reactive, because you are proactive already?

“Yeah, but that is not to say that...there is more that could be shared, but if people knew, because if they do not know about it, they do not ask for it. You give them enough, and they do not ask for anything else and that takes the pressure off.” – E/2

The quotes above refer to an outcome and an antecedent of sharing information, the first about sharing too much information, which leads to **information overload**, the other about not **sharing enough information**. Both situations affect the recipients understanding adversely, which defeats the purpose of sharing the information in the first place. Participant E/2 then mentions the that the recipient’s **knowledge**, or lack thereof, could be exploited in terms of how much information is given or not, if the recipient does not know how much information to expect, the information sharer can share whatever they please. This exploitation is perhaps the reason for participant A/2’s concern of not getting the full picture and hence lacking understanding when information is shared sometimes.

Researcher: What do you think has changed from when you were less proactive to now when you are actually up to a six?

“I suppose it is trying to get that balance between, being holistic about it looking at things as a whole, not compartmentalising it, and not taking on too much and trying to make that as an excuse.” – Participant A/2

Researcher: Do you think there are any barriers to information sharing in the charity?

“I suppose it is getting the balance about information; I would go back to that. Depending as a charity on people giving us information, because we are not there all the time, like I said earlier, it is getting up to speed on a lot of issues, you know, getting to know about issues that are fairly complex. And I think it is how up to speed you are on these issues, it can be a barrier.” – Participant A/2

Researcher: Do you think information is distorted in any way to try to sell a particular point of view?

“Because at times it has not been the most important and most pressing thing in my life, you know there is times when I have got a full picture of things, but then because I have been distracted with other things, been away for a couple of weeks and then I have to come back to it, you know you have often got to pick up again. So you are not keeping a consistent view on things...so that has been a problem as well.” – Participant A/2

Participant A/2 draws attention to the **nature of the job**, having a break between meetings, makes it difficult for members to get up to speed with issues and means that members are easily distracted by other issues in their lives.

Involvement

Researcher: Has there been any time when you have felt less involved in the organisation?

“When that role dries up, because it is not consistent, I have times like now where it is extremely busy, I could work three times as many hours and still not get it done, and then you might get a month or two where it slows down. There is no grants to chase, there is no applications to do, there is nothing new going on. The existing projects are well staffed, and running nicely.” – Participant E/2

Researcher: How well do you feel involved or part of the activities that go on within the organisation; you put in a ten, could you please talk me through this?

“In every aspect of the business I have made sure I have been involved. For many years I have always wanted to know exactly what is going on, when it is happening and where, and I immerse myself within what everybody does and I feel even that I do that more so than I have been before now I am actually working here so I do not think there is anything that goes on that I do not know about.” – Participant C/2

Researcher: What do you think drives you, what do you think gives you that motivation to be proactive?

“I think when you take on a role, when you take on that responsibility of management and governing the charity you have got to be fully committed to be doing that for personal reasons determination.” – Participant C/2

Researcher: What do you think drives you, what do you think gives you that motivation to be proactive? ...continued

“Altruistic purposes you want to help people and you want to devote your time and energy to doing it without personal gain.” – Participant C/2

Researcher: With regards to championing the refugee program, was there any different motivation?

“I suppose I am very interested in these sorts of issues, multicultural issues, that type of thing, it fitted well into what I am doing, and it could lead to some research.” – Participant A/2

Researcher: Has there been a time when you have felt less involved in the organisation?

“I think it is up to me, I can be less involved because I am doing other things. So it is not that people exclude me within the organisation, it is more like I exclude myself.” – Participant A/2

Involvement in the activities of the organisation, directly leads to members being active and sharing information with others, as they champion projects. It is affected by many factors, including those mentioned in the quotes above. The main and obvious one is **availability of projects**, which has to be in place for members to be involved in the first place. The other is **enthusiasm** to be involved, which is affected by a number of other factors too, like **commitment** to the organisation’s objectives.

Researcher: You put in a five for job satisfaction, could you please talk me through what is going on in your mind here?

“It is a very difficult time in the way that the charity is run, in the change in direction and this talk about the free school. It is causing a lot of pressure you know, and a lot of it is not

particularly satisfying because it is not really doing the work of the charity.” – Participant A/2

Researcher: *How well do you feel your colleagues cooperate with each other; you put in a five, could you talk me through this?*

“I think at certain times, people have got their own agenda, and I do not mean people are being dishonest, I do not mean that at all. I think people are well motivated when they are working, but they have particular emphasis.” – Participant A/2

Researcher: *So is there too much diversity in thinking among the trustees?*

“I think it is the understanding of the company and its aims. People have joined the company at different times, and the company has been doing different things at different times. So people join when it was a counselling organisation and they think, this is what the organisation is, they are a counselling organisation. Other people joined the organisation while it was offering housing benefits and they have seen a lot of changes since then.” – Participant E/2

Researcher: *How well do you feel your colleagues cooperate with each other; you put in a five, could you talk me through what is on your mind here?*

“There have been differences in opinions, some very big decisions have been made about the direction the charity takes, and there has been a bit of a split. Unfortunately some people have not been as cooperative as they need to be, there is not as much feedback, you are not getting responses when you are asking people, emails and things are not working as well.” – Participant E/2

Researcher: *You say you think you are sharing too much information, what do you think is the cause of this?*

“It might have been better if the whole board was on board, and different people had taken different aspects; that is how it should have to work, but with some people being in favour of the project and some not, it is causing problems. It has put a massive load on the one or two who are interested.” – Participant E/2

Participant E/2 points out the effect **differences in opinion** have on people’s commitment and involvement in projects, as they tend not to be very involved when they are not in full

support of the project. Part of the reasons for these differences, according to participant E/2 is that people have joined the organisation at different times, and objectives changes over time, so people have **conflicting objectives**. An example of this is in participant A/2's quote about the new direction of the charity not tying in with the original intention and making him less satisfied. Participant A/2 also says that **personal agendas** could be the cause of this conflict of objectives, with individuals trying to influence projects to suit them.

Researcher: With regards to the knowledge of what the charity does and building up your knowledge base as you go long, do you think the more experience you gain in the charity improves your level of involvement?.

"Yes I would say so." – Participant A/2

Researcher: Would it be fair to say that there was some sort of politics or power play going on when you came into the organisation?

"It was like a case of not really knowing or feeling involved because you did not know what was going on." – Participant C/2

Researcher: What would you say will help you get your job satisfaction to a ten?

"I think some organisational issues being sorted out, clearer sense of organisation and also allowing me to focus on the things that I would like to do with the charity." – Participant A/2

Researcher: What would you say will help you get your job satisfaction to a ten?

"Probably more responsibility, I will be happy. Job security, I mean I have got a five month contract, so if I knew I had a secure contract that will make me happier, and I think if this was my project rather than to support a project then I would be happier." – Participant C/2

Researcher: What would you say will help you get your job satisfaction to a ten?

"But if I was working in a private company would I be as enthusiastic? probably not but I would still want to do the job to the best of my ability but unless it is your own business you would not be particularly shaping how you are involved and you would not have any huge

incentive to shape the way the business goes further than your own position.” – Participant C/2

Researcher: How much do you feel part of the activities that go on within the organisation?

“I’m at the centre of it, it is all mostly my idea, everything new that happens, it is me, and getting it done, it is me.” – Participant E/2

Researcher: How satisfied are you with your job, you put in a ten, could you please talk me through what is going through your mind here?

“I think it is because I am pretty much in control of what I do, so I essentially designed my own job in the first place, so there is nobody really telling me what to do, so it is sort of a creative, finding new projects, developing new projects.” – Participant E/2

Participant A/2 and C/2 mention how increased **knowledge** of the organisation and its activities increases his involvement, and they both supports the second point that having **ownership** of a project would make them more involved and happier. Finally, participant E/2 mentions that having **authority and control** over what he does, gives him more satisfaction and keeps him at the centre of activities in the organisation.

Past Experiences

Researcher: How much do you feel your past experiences with colleagues affect your willingness to share information with them?

“If I have bad experiences with information sharing, which could be that it does not get the desired outcome, they do not pass it on, the word does not get out or is misrepresented, I would be weary. But generally speaking, I just flood everything.” – Participant E/2

Researcher: How much do you feel your past experiences with colleagues affect your willingness to share information with them?

“So that is one of the experiences that would make me say when I was a trustee I would not discuss something with him, because there is not enough interest and enthusiasm with that particular trustee but it does not really affect my sharing.” – Participant C/2

Researcher: *I understand that if he did ask you, you would share, but on an active level would you be as forthcoming to try to give him information for example?*

“Probably not.” – Participant C/2

Researcher: *How much do you feel your past experiences with colleagues affect your willingness to share information with them?*

“I would not say it never ever does affect me, I think with the project manager I am sometimes more careful what I say, because he goes off and does what he wants, it does not matter if I have fallen out with someone I had business with, I do not work like that, whatever happens, happens, you put an end to it, and then we continue, so I just communicate.” – Participant G/2

These quotes show that negative past information sharing experiences do affect the way people approach sharing information with others in the future and would make them **unwilling** to actively share information with that colleague in future, but it does not affect when the colleague requests information.

Proactivity

Researcher: *Being proactive or championing an idea in the organisation, does it make you feel in a position of power?*

“I suppose it does.” – Participant A/2

Researcher: *Do you have any examples?*

“Well, it could also make you feel disempowered if people refuse to take it up.” – Participant A/2

Researcher: *Does being proactive make you feel in a position of power?*

“I am in a position of power, my wife would say that is the way I like it, I am not sure it is, it is not power for the sake of power. The thing I like is the control with nobody on my back telling me what to do, just that freedom to follow my nose and do what I think is right

rather than hey I am in charge, it is not that at all but being in that position really suits me, makes life easier and stress free.” – Participant E/2

The comments above explain the various perceptions that individuals have about proactivity in the organisation. Participant A/2 explains that proactivity can have a **positive or negative** effect on the proactive individual, depending on how well the colleague’s receive the information being shared. Participant E/2 feels that being proactive and being the one to bring information to your colleagues puts him in a **position of power**, in the sense that he has the freedom and authority to do what he prefers.

Researcher: Would you say there are any barriers that hinder people from being proactive in sharing information in this organisation?

“There are some that are more proactive than others and would like everyone to be as proactive and enthusiastic as I am but I appreciate and I accept that not everybody will be but it does not stop me from wanting them to be.” – Participant C/2

Researcher: Does being proactive or championing an idea in the organisation, does it make you feel in a position of power?

“It requires a lot of energy sometimes to be proactive, I think I have been quite proactive about the refugee thing, but I have not really taken it forward in a way that I could do, because other things got in the way.” – Participant A/2

Researcher: Not being proactive at this time, was that because of a lack of knowledge of what was going on or what?

“ I think it was yes a lack of knowledge and a lack of understanding of what my role was and what the role of the trustees was.” – Participant C/2

Researcher: You mentioned you were not proactive in the early days, was that a lack of knowledge of what?

“No, just the early days when I was finding my feet and reluctant to suggest changes for six months or so. I was finding out, I did not want to go in and just change everything for the sake of it. I wanted to learn all about it first.” - Participant E/2

Participant E/2 accepts that not everybody can be proactive, and participant A/2 makes the point that **external commitments** get in the way of being proactive. Participant C/2 and E/2 suggest that they were not proactive when they did not fully understand their roles, hence **knowledge** seems to be a huge factor in being proactive with information sharing. They also suggest that this knowledge is gotten over time, which is then used to be more involved in the organisation.

Researcher: As proactivity sometimes brings change, do you think it is always good to change things?

“Not really. If things are working you do not want to change them but on the other hand you do not want to be too complacent. There are times when you need to change things.” – Participant A/2

Researcher: So cooperation among colleagues has been better in the past?

“The issue about the free school, its helped people clarify what they want to do as well. Because at first people just went along with it and drifted along, whereas now people have had to think things through a lot, which has not been a bad thing to do.” – Participant A/2

Researcher: Do you think being proactive is always a good thing in the organisation?

“No, I think you need reflective time as well, I do tend to just keep charging ahead, I do not know if it is just me or the nature of the job and the demands of the job but I do keep going ahead. Always trying to find new things and the things I do not do are things you need to sit back and take stock every now and then a bit of housekeeping as it were.” – Participant E/2

Researcher: So does going out and looking for work involve changing things within the organisation?

“Oh yes, we make massive changes constantly, I work from strategic aims, and my knowledge and experience of where the company needs to be, in order to achieve them. That involves keeping a certain level of projects going, it involves keeping so many staff on board, and it involves quality assurance systems in place. There are things I know we need to keep moving forward and achieving the aims. If that means we have got to even change the aims, we would do that. Keep the company alive and keep achieving the big picture. We have been through loads of changes, usually mine.” – Participant E/2

Researcher: Do you think that pressure that comes with being more involved on an operational level leads you to become more proactive or does it reduce morale?

“Yes, I think it leads me to be more proactive but I do not feel under any pressure. Having to concentrate on the detail I have got to be more proactive and have got to increase my knowledge on what is going on and if that means working from home extra hours to bring myself up to speed then I will do that and I am doing that.” – Participant C/2

The first three quotes from participant A/2 and E/2 highlight the need to **find a balance** between being complacent and being too proactive with information sharing and activities. Suggesting that either extreme would not be good, so **scrutinising the consequences** of proactive activities and information sharing more would be the right thing to do. Participant E/2 mentions how the **dynamic nature** of the **organisational objective**, encourages proactivity in the roles. Participant C/2 adds to this by explaining how more **responsibility** in the **role** leads him to be more proactive.

Role

Researcher: If you were the chair of the charity would you be more active?

“Of course if you are the chair it would make you more active, I mean I am the treasurer, which means I need to be up to speed with financial information. I suppose it is my responsibility to try and keep an eye out on that kind of information, and try and share that type of information.” – Participant A/2

Researcher: Are you restricted with the information you can share?

“Yeah, because I might get information from the senior management at the university that I can share eventually with my team, but not immediately, so you know there is a restriction on what you can share and what you cannot share, you might have confidential information that cannot be shared but in the charity I do not think there is a limit within the role, because in the role I never keep anything back in the charity, yeah because of my role I have to.” – Participant G/2

Researcher: How much do you feel your role affects your proactivity and sharing of

information, you put in a nine, so is it primarily the role which drives you to be proactive?

“Yes it is the role, like the last one it is the role and the belief which drives me to be proactive and share information but there is always room for improvement.” – Participant C/2

Researcher: So if you were in a different role that did not require you to share as much, would you still try and be active in that role?

“Yes, I mean if I take a role, if I have got roles with other charities and other groups but it is the commitment in the end I am just as active with other groups. If I am going to join something I do not do it half-baked.” – Participant C/2

Researcher: How much does your role influence your level of information sharing with colleague?

“Luckily I am in a role that needs that, which is handy, but I will do it anyway. I have done all sorts of rubbish jobs, I always do, and I end up taking over. I worked in kitchens and bakeries and stuff, and ended up, sort of managing them and running them.” – Participant E/2

Researcher: Why do you think you have been proactive regardless of the role? Is it like you have a sense of motivation to do these things or what makes you get into these various roles?

“It’s something intrinsic isn’t it, I think it is the challenge I think, new ways of doing things, we all try to solve problems, so everything I am doing, I think what the problems are, I try to do it better.” – Participant E/2

Researcher: How much do you feel your sharing of information with colleagues is a function of your role?

“Actually sharing is really big, being a trustee, part of what you do with all of that information you cannot do your role without it. So I have no issue with sharing all the information I am getting. I think everybody; all the trustees are very good at sharing information.” – Participant G/2

Researcher: How much is your willingness to share information a function of your role?

“I think some people see it as actually not doing very much inside of the meeting, turn up to the meeting, consider decisions that need to be made, make the decisions, go away. But I do not see myself as that I see myself as more than that, you know so in that way I think it is a bit different. So I think part of it is a function of the role but I think I am a very proactive person who actually never ever waits to be told, I am always ahead of the game.” - Participant F/2

The quotes above all refer to how much their proactive information sharing behaviour is a function of their role. Participant A/2 mentions something very interesting, suggesting that the role determines the **type of information** an individual would be looking to share proactively. Participant G/2 mentions another interesting point, about how the role can actually **restrict** individuals from sharing information.

Participant C/2 and E/2 both mention that their role makes them proactive but also that in different roles in other organisations they have been the same, suggesting that their personalities also come through. Participant G/2 points out that the nature of the role means he has to share information, and he cannot do without it, while participant F/2 goes on to echo participant C/2 and E/2, in saying that it is partly a function of the role and partly her personality. The function of the role is certain in proactive information sharing, as it cuts across all the themes, but in roles where proactive sharing is not required, only those with proactive **personalities** go on to share information proactively.

Researcher: Would you say there are any barriers that hinder information sharing in the organisation?

“You know, it is all short term funding and so you are with your colleagues and very soon you are competing with them for the only job that is left or what you signed up for does not really happen because the funding dries up. So there is no more money for the training and you know the charity sector is really difficult, especially if you are totally dependent on funding bids and contracts. Big charities, they have got hundreds of people, they have got a bit more of a steady path, it is really difficult for a smaller charity to plan out those ups and downs and that causes problems.” – Participant E/2

Researcher: How happy are you with your job, you put in a seven, could you please talk me through what was on your mind here?

“I think I am very happy with the job, I feel the job gives me an opportunity to extend and practice the skills I have already but it also restricts me because money is a constraint and factor, so could do a lot more with the job if we had more money.” – Participant F/2

The quotes above explain the restrictions that the **nature of the job** puts on the how much they can do. **Competition for roles** makes the idea of having a personal agenda more probable, the **size of the organisation** and funding, are other issues that have been identified to restrict how much can be achieved in their roles.

Personal Agenda

Researcher: How well do you feel your colleagues cooperate with each other; you put in a two, could you talk me through what was on your mind here?

“Generally everyone cooperates with each other; the problem is that sometimes the decisions that we have to make within the charity create conflict of interests because other members of the board are working in the areas which we are impacting upon. So when we are making a decision their job, their security and obviously everything else that goes with it could be threatened by the conflict of interest so they tend to be less cooperative because they are defending their own financial security.” – Participant F/2

Researcher: I am a member of the board in the student union in my university, and in most cases when we have situations where people are indirectly affected by a decision, someone points this out. So you have to say, if you think it conflicts with your interest?

“That is fine and it is not a problem when you are voluntarily working, but if your financial support depends on decisions, it may come indirectly in effect, then that is when your defense mechanisms click.” – Participant F/2

Researcher: So how did this project come about without the consent of some members?

“I do support that [free school idea] but I feel the way it has been developed has not necessarily been inclusive of all the trustees and some people have been doing things that perhaps we feel are not the right way to do them.” – Participant G/2

Researcher: So there are personal issues because of the way the whole process of the

free school has been conducted?

“Had it been handled differently, we probably would have still been supportive of it, but I think because of not being handled very well in some instances, I think it has given the charity a bit of a reputation which is not fair because, we did support the idea of a free school, but in getting the publicity for that, it has upset the people we do the counseling with.” – Participant G/2

Researcher: How satisfied are you with your job and you put down a seven, could you just talk me through what was going on in your mind at that point?

“I am not really satisfied with it, the reason is that, there is an activity going on in the charity at the moment that I do not feel we necessarily should be doing so therefore I do not feel totally engaged with the process.” – Participant G/2

Participant F/2 points to **conflict of interest** in discussing certain issues in the organisation, as some decisions affect the members directly, either financially or otherwise, hence their personal agendas are on their minds, and they tend not to be as cooperative. The quotes from participant G/2 illustrate an example of how personal agendas have caused **disaffection** among members. Participant G/2 is not supportive of the idea of a free school because she felt that another member had forced the idea on the group, and had not handled it properly.

Researcher: What would say motivates you the most to get involved in this organisation?

“I suppose it is to try and help people in a way.” – Participant A/2

Researcher: With regards to championing the refugee program, was there any different motivation?

“I suppose I am very interested in these sorts of issues, multicultural issues, that type of thing, it fitted well into what I am doing, and it could lead to some research.” – Participant A/2

Researcher: What would you say is your primary motivation to be involved in this organisation and be proactive?

“I think it is because it is a worthwhile cause, I think without a doubt. It is a charity that, it should be more counselling services for families and children in the west end, it is a

deprived area, and if we can do a small thing to help a few families, which is the work of the charity, it is really worthwhile.” – Participant G/2

The quotes from Participant A/2 and G/2 show that the organisational members would prefer to be involved in projects that are more personal and hold meaning for them.

Researcher: Has there been a time when it has been less satisfying being part of the organisation?

“It is less satisfying when people start to be defensive and politics take over, so manipulation goes on.” – Participant F/2

Researcher: How well do you feel you share work related information with your colleagues, and you rated this an eight, could you talk me through that?

“I’m not sure the project manager (participant E/2) sometimes shares all the information he has, so it is not so much that I do not, I am very open as the secretary, everything is recorded everything is monitored, everything is sent to everybody, but I sometimes feel like we get fed information.” – Participant G/2

Researcher: Has there been any time where you felt you shared information less for any reason?

“If you were in a situation where you had a concern and you know that by sharing that concern you would upset someone and that information is not a 100 percent certainty behind it, therefore why upset someone if it is unnecessary. So that would be the only case.” – Participant F/2

Researcher: Do you think there has been anytime where colleagues have cooperated less at all, when the rating has been less than this?

“Actually a comment was made, we had a meeting with a sub group and in the sub group somebody actually made the comment and I noticed they were behaving illogically and I think it is because their job is threatened. The government is threatening everybody’s jobs at the moment because of funding so people start to behave illogically.” – Participant F/2

Participant F/2 and G/2 shed light on how **politics** and personal agenda affects their openness and information sharing with one another. Participant G/2 explicitly mentions

another member, and suggests that he might withhold information sometimes, and participant F/2 gives a past scenario where a member directly affected by a decision was behaving **irrationally**.

Use of Relevant Technology

Researcher: You say you share information well as a group, you put in a nine here, could you talk me through why you think you share information so well within the group?

“The way I think that this can be improved is possibly, which I mentioned earlier as chair, that we should have conference calling facilities like Skype but some of the other trustees cannot really get their head around that so that is a way I think that could be improved.” – Participant C/2

Participant C/2 believes that using technology, like video calling would improve information sharing in the organisation, if this particular type of technology would cause information overload is not known, but participants suggest that emails cause information overload. The ability of his colleagues to use the relevant technology poses a **barrier** to using it though.

Factors Influencing Proactive Information Sharing Indirectly

Some of the indirect factors have come up while discussing the direct factors, like: **Nature of the job, knowledge, ownership of projects, personality, and information overload**. These factors would not be explained further, as the quotes from the direct factors give good insight to them already.

Some of these factors have other issues that influence them and they would be looked at in more detail below, including those indirect factors that were not originally mentioned in discussing direct factors.

Commitment

Researcher: *How well do you feel you share work related information with your colleagues in the organisation?*

“Well I think it is because my other job gets in the way, so it is a bit like there are times when I can get really involved, but then I have got other pressures and stuff, so that gets in the way. But I think that is my issue, rather than the charity's.” – Participant A/2

Researcher: *In the past when you have been proactive like that, was there any particular reason or it was just because of your role?*

“No, I just wanted to help the charity. It was an extra thing to do on top of my secretary role as part of the charity and this was clearly too much to do because last year it took up a lot of time, you know getting people to actually run for the charity.” – Participant G/2

Researcher: *How proactive do you feel in your work role, you put in a six?*

“It requires a lot of energy sometimes to be proactive, I think I have been quite proactive about the refugee thing, but I have not really taken it forward in a way that I could do, because other things got in the way.” Participant A/2

Researcher: *So what do you think is the cause of you sharing too much information?*

“It is the difference with having a volunteer board, they only want to commit so many hours, they are all professionals, and they have got jobs to do. Nobody is got the level of commitment you need, to take it all on board. We are talking about massive documents getting circulated, and it is a whole new direction for the organisation.” – Participant E/2

The quotes above all carry on from the point about commitment; they all talk about **external engagements** keeping some members busy and lacking the **time and energy** sometimes to be as committed as they would like to be. Commitment is also affected by **differences in opinion** and **conflicting objectives**.

Trust

Researcher: *People have often talked about business trust and personal trust; do you have any views on that?*

“There is a difference; there is a different relationship all together. So I think that where I come from to say it does not really matter whether I like them or trust them, you know they are a colleague and you want to work with them and you want to create a business and create a working relationship rather than a personal one” – Participant C/2

Researcher: If someone was to fail you on a previous task do you think your business trust would still be at the same level?

“you might task an individual with a certain thing to do and if they do not do it then the next time maybe I will try somebody else but it might not affect your trust in them, you kind of accept that is who they are and you accept that there are limits on their capabilities and there are limits on their time, possibly because effectively these are volunteers” - Participant C/2

Researcher: Do you think spending more time as a team increases any kind of trust, personal or business?

“Well, yes. You get to know people and you get to know what their capabilities are, you get to know who is capable of doing what, so yeah, time definitely affects and definitely grows the trust.” – Participant C/2

Researcher: Do you think as you spend more time and as you grow together as a group you learn to trust each other more?

“Yes, because you get to know them more.” – Participant E/2

Participant C/2 suggests that personal trust does not come into play for him when dealing with his colleagues. He points out that all that matters is striking a business relationship or **business trust**, and if he was let down by their capabilities, it would not affect his trust in their business ability only inform him about the **limitations** of their **ability**, which he is ready to accept. Participant C/2 and E/2 go on to insinuate that trust does develop and grow with the **length of time in the organisation**.

Researcher: How much do you think trust influences your willingness to share information with colleagues, you put in a two, could you talk me through this?

“In that I think what I mean, I am quite happy to share information with people who I do not particularly trust. It does not affect whether I share information or whether I trust or like them particularly so I am happy to share” – Participant C/2

Researcher: Do you think trusting someone on a personal level makes you more open with regards to how you share information with them?

“My trust with working with a colleague would develop, and that would be a working trust, on a business level, and the personal trust would not come into it, unless we are mixing socially. So if I was meeting with them socially then that will develop but I do not meet with any of them socially. It is all working relationships” – Participant C/2

Researcher: Would you say there are any barriers that hinder information sharing in the organisation?

“I think other people; there is a trust element I think for other people. Personal trust, I think we have been through a phase where that has certainly seemed like an issue and I think it comes down to the nature of the business, you know, it is all short term funding and so you are with your colleagues and very soon you are competing with them for the only job that is left or what you signed up for does not really happen because the funding dries up so there is no more money for the training and you know the charity sector is really difficult, especially if you are totally dependent on funding bids and contracts.” – Participant E/2

Researcher: So trust does not matter to you in terms of sharing information with colleagues?

“If someone is not as personally trustworthy as you might have thought.... I have some experience of that, so it makes you weary of sharing some things, but they are probably things that you should not be sharing anyway.” – Participant E/2

Researcher: Does it matter what type of information is in question?

It does, yeah, so if there was a situation whereby you thought someone was not contributing to the charity's mission, so you do not trust that they were a 100 percent behind the charity and there was some sort of interest going on, you maybe sort of more careful about what kind of information you give them because your duty is to the charity not to them – Participant F/2

Participant C/2 disregards the issue of personal trust in information sharing, and believes that whether he knew his colleagues personally or not, would have no **effect** on him sharing of information with them. On the other hand participant E/2 believes that there are trust issues and whether this would affect information sharing or not, depends on the **type of the information**. Participant F/2 seems to support this notion as well, in saying that some **type of information** might be withheld.

Outcomes

Researcher: What do you expect when you share information with your colleagues?

“Gratitude and praise, I need someone to tell me that what I have done is right and it is good and I have done particularly well in doing that work. It is not just the job, it is all internal stuff with me” – Participant E/2

Researcher: so has there been a time in this organisation when you have been less satisfied with your job?

“I think it is where....recently when it has happened, its only maybe a couple of days, its where maybe, I am challenged about something I am doing by a trustee. Who I think should know better, you know, they have had information, and perhaps they have not read it or understood it, and they are pursuing an old agenda of their own rather than...But then the power balance, with them being the trustees and able to control what I do, that has a negative effect.” – Participant E/2

Researcher: You said it is not just the job, it is internal (emotional) as well. Do you think it is because it is internal as well, that makes the drive to be proactive high as well?

“Yes. If I do not get the gratitude and the praise and I get negative feedback, that is fine as well, it is not what I wanted but I would work even harder to make it right. It will have the same effect I will just keep blabbing on” – Participant E/2

Researcher: When you share information with colleagues, what sort of outcome do you expect?

“I do not expect any gratitude but I expect ideas to arise and problems to be solved. That is what I expect. I expect colleagues to have an overview and be able to contribute.” – Participant C/2

Researcher: When you share information with colleagues, what sort of outcome do you expect?

“I suppose interest, interest in what I am doing and asking the right questions, and I suppose being informed with what I am doing if you know what I mean.” – Participant A/2

Researcher: When you share information with colleagues, what sort of outcome do you expect?

“I would like to have clarity that my information was correct, that they agreed with my information, secondly that actions that would affect the charity would be well informed, that is the two things that I would expect. I would expect a response of any clarifications or further knowledge to add, that would be received as well” – Participant F/2

The quotes above represent various outcomes of information sharing experiences that participants have pointed out they expect from sharing information with colleagues. Participant A/2 expects colleagues to **show interest**, participant C/2 expects **problem solving**, and participant E/2 is more focused on the **feedback**, this of course is a result of his role, as he leads the projects, and has to report to the board of trustees. Participant F/2 would like **clarification of the information**, which links back to the recipient's understanding.

Responsibility

Researcher: With regards to job satisfaction, you put in a nine, could you talk me through what is going through your mind here?

“Yeah, you know I have just started, it is my third week so there is a lot to get my head around, there is a lot of new information to take in but I feel so far I am getting there and I feel like the role to support the project manager is good pressure because the ideas are developing and that gives me a good sense of satisfaction” – Participant C/2

Researcher: With regards to job satisfaction, you put in a nine, could you talk me

through what is going through your mind here? ...continued

“I am pleased to be involved more hands on rather than on a strategic level so that has given me a good sense of job satisfaction” – Participant C/2

Researcher: What would you say would get your job satisfaction to a ten?

“Probably more responsibility, I'll be happy.” – Participant C/2

Researcher: How much does your wellbeing affect your willingness to share information, you put in a six?

“I get down when we are back to that bit where there is no new development work going on” – Participant E/2

Researcher: Do you feel satisfied with your job when you have less authority to be as proactive as you want?

“Definitely I was less satisfied when I had less authority you know taking up a job being on a staff and not having a position of responsibility made me less enthusiastic because I could see the opportunities of getting more responsibilities” – Participant C/2

Researcher: So if you get dissatisfied with the job, like you mentioned in the beginning, would that reduce your level of involvement?

“I think going back to that time I was restricted but I was not enthusiastic until I had more responsibility. I felt that was kept from me and the other trustees at the time but like I said there was a bit of a sinister reason” – Participant C/2

Participant C/2 talks about two opposing effects of responsibility in the organisation. He believes that having more responsibility increases his **satisfaction** and puts him a place of **authority**, while having less responsibility makes him **less enthusiastic**. Participant E/2 also feels low when there are no projects to do, which is his responsibility in the organisation.

Emotions Influencing Information Sharing

From discussing the direct factors, all but one of the emotional factors were covered, they will not be discussed further in this section, and they are: **Feeling of interest from**

colleagues, enthusiasm, willingness / unwillingness, disaffection, satisfaction / dissatisfaction, feeling of power, and low morale.

The only other affective factor that was not mentioned in discussing direct and indirect factors is discussed below.

Researcher: Do you feel pressured into sharing information with colleagues at all, you put in a three?

“I suppose there is pressure because if I see that information is not being shared I feel pressured to actually going out to finding it and try to share it. It is in that way that the pressure is as well. Like someone saying to me I want information out of you” – Participant F/2

Researcher: You pulling people together to get information; is that a function of your role as a chair or is it what you do as a person?

“A bit of both, mostly because I am the chair” – Participant F/2

Participant F/2 **feels obliged** to, not only, share information with colleagues, but to also go out and look for information, and this she says is because of her role as chair.

Power Relations Influencing Proactive Information Sharing

While there have been mentions of politics and the how the organisational structure and policy affects information sharing, the references to issues concerning power relations are: **Personal agendas, differences in opinion, conflicting objectives, authority and control, competition for roles, conflict of interest, and politics and irrational behaviour.** They have all been discussed.

Contextual Factors Influencing Proactive Information Sharing

The factors that are particular to this case that have either hindered or increased proactive information sharing have been discussed during the course of discussing the direct and indirect factors. These factors are: **Break in communication, availability of projects,**

competition for roles, size of organisation, and organisational objectives. All these factors can be linked to the **Nature of the job.** The only other contextual issue, which comes from the social network analysis, is **communication channels.** The channels which colleagues use to communicate, play a huge role in their willingness to share, how easy it is to share, and the amount of information they share.

Processes Influencing Proactive Information Sharing

The strategies that have resulted as a consequence of contextual factors or that individuals try to use to overcome some of the contextual barriers to proactive information sharing have already been touched on while discussing the direct and indirect factors. Those that have been discussed are: **finding a balance** between being too proactive and complacent, **scrutinising consequences** of proactivity and **accepting limitations** of colleagues' ability. Others that have not been discussed are discussed below.

Researcher: What would you say would help you get to a ten, to be satisfied with your role?

"I think some organisational issues being sorted out, clearer sense of organisation and also allowing me to focus on the things that I would like to do with the charity." – Participant A/2

Researcher: How much do you feel pressured by your colleagues into sharing information?

"At times there has been too much of one type, and not enough of another, so we do not really get the whole picture. So that has been an issue at times, with the free school." – Participant A/2

Researcher: So do you think information is distorted in any way to try and sell a particular kind of picture?

"Could be, I think the other issue is, I suspect, because it is not like a full time job, and also because at times it has not been the most important and most pressing thing in my life. You know there are times when I have a full picture of things but then because I have been distracted with other things, been away a couple of weeks and then I have to come back to

it, you know you have often got to pick up again. So you are not keeping a consistent view on things.....so that has been a problem as well.” Participant A/2

Researcher: I know you want projects of personal interest to you to go forward, but you do not have the time to do it, how do you balance that out?

I suppose it is trying to get that balance between, being holistic about it looking at things as a whole, not compartmentalising it, and not taking on too much and trying to make that as an excuse.” – Participant A/2

Researcher: If you were maybe the chair on the board, would it make you more proactive?

“Some people are not particularly interested in, I mean they are interested in the broad money, but they are not interested in the details, so I suppose it is trying to get that balance between giving them enough information and not giving them too much.” – Participant A/2

Researcher: Do you think there are any barriers to information sharing in the organisation?

“I suppose it is getting the balance about information; I would go back to that. Depending as a charity on people giving us information, because we are not there all the time, like I said earlier, it is getting up to speed on a lot of issues, you know, getting to know about issues that are fairly complex. And I think it is how up to speed you are on these issues, it can be a barrier.” – Participant A/2

Researcher: Why do you think you are sharing too much information?

“It might have been better if the whole board were on board and different people had taken different aspects, that is how it should have worked, but with some people being in favour of the project and some not, it is causing problems. It has put a massive load on the one or two who are interested.” – Participant E/2

Researcher: You said you share information well with the group, you put in a nine here, could you talk me through why you think you share information so well with the group?

“I think I always have, and most of the information we share is via email, and there could be email discussions and I am one of the ones that always responds to emails. There is the odd one that does not, but I think there is a good level of cooperation and good level of

information sharing. The way I think that this can be improved is possibly, which I mentioned earlier as chair that we should have conference calling facilities like Skype but some of the other trustees cannot really get their head around that so that is a way I think that could be improved” – Participant E/2

Researcher: So how do you think you can improve cooperation in the organisation?

“Perhaps, the way we do the meetings could change, they are quite rushed, perhaps we do not have enough time to discuss the other issues, so we try to make decisions within an hour, so perhaps the way we hold the meetings and the frequency of the meetings perhaps we need to look at “ – Participant G/2

The quotes above show various ways which participants have suggested that issues affecting proactive information sharing could be overcome, or have been overcome in their organisation. Participant A/2 believes that allowing him to **focus on his interests** in the charity, would make him more satisfied and proactive.

Participant A/2 also believes that being proactive sometimes can be a process of trying to push forward one’s personal agenda. He goes on to discuss the issue of **finding the right balance** between information overload and information hoarding, and also to aid recipient understanding.

Participant E/2 believes that division of labour would help to increase involvement among colleagues in the organisation, while participant C/2 believes using video conferencing **technology** would improve information sharing in the organisation. Participant G/2 talks about maybe increasing the **frequency of meetings**, to help reduce the break in communication they experience.

Summary of Findings in Case Two

Summary of Interview Findings and Relationships Between Factors

Figure 6.7 represents the summary of findings from the interviews and the relationships between the factors, the red rounded rectangles representing the direct factors and the blue rounded rectangles representing indirect factors.

Narrative for the Direct Factors

The main factors identified to influence information sharing are: **Recipient understanding, involvement, past experiences, proactivity, role, use of relevant technology, and personal agenda.**

Recipient understanding is important in this case because it determines the level of proactive information sharing that can be done. If colleagues find it hard to understand what is being shared, then sharing more will be of little use. This *understanding* can be affected by other factors too, like: information overload, not enough information, and having a break in communication.

Involvement in the organisation may lead individuals to feel of satisfied with their job and make them more active with sharing information. The likelihood is that most people want to get involved, but there are exceptions to this, and there are a number of issues that determine an individual's level of involvement in this case: Availability of projects and tasks, ownership of projects and commitment, to mention a few.

Past experiences which are a result of different types of *outcomes* from information sharing activities, like *good feedback and problem solving*, affects only future *proactive* information sharing, and not information sharing upon request, it also affects *trust* but does not lead to reduced sharing of *business information*.

Proactivity can lead to a feeling of power in the group, by being the centre of most information sharing, this increases information requests from colleagues as well and it could be as a result of *knowledge gained* and *responsibility in their roles*. *Proactivity* can be sometimes put off by *external commitment* and the way colleagues respond the information shared as a result of proactivity. If colleagues do not receive it well, it can lead to low morale for the sender. However *proactivity* is not something that should be done endlessly, there should be time for reflection on changes and activities being done, *consequences of proactive* activities being scrutinised, and *finding the right balance* between changing what works and being complacent.

Role is the main factor that defines how much *proactive information sharing* activity the individual takes on. But this is also determined by how much commitment the individual puts into this role as a result of their *personality*. With the *role* also comes reduced or increased *responsibility*.

The use of technology can help make information sharing easier by making it easier to communicate. But it can also serve as a barrier when the members do not know how to use that particular technology, which in this case is video conferencing. The preferred communication channels used in the organisation also determines the need for technology.

Narrative for the Indirect Factors

These main factors as described above, influence each other, but they are also influenced by other factors, which do not influence information sharing behaviour directly: **Nature of the job, knowledge, ownership of projects, personality, information overload, trust, commitment, responsibility, and outcome.**

Nature of the job determines a number of factors that directly influence information sharing and it is also a contextual factor, which would be looked at in detail in the narrative for context. **Ownership of projects** gives the individual a sense of *authority and control* over the duties that they are to carry out, which makes them more willing to be *involved* in the tasks *proactively*. **Outcome** is mostly a result of past information sharing *experiences* between two individuals, and it could affect future information sharing activities. Some types of *outcomes* could be; *good feedback, negative feedback, problem solving*.

Trust is split into *business trust* and *personal trust*, and the *business trust* does not seem to change information sharing behaviour, only an acceptance of colleagues' abilities and limitations. *Personal trust* however, as purported by many, does not affect proactively sharing *business information*, only *personal information*.

Knowledge pertaining to the role improves the *proactivity* of an individual, as they feel more confident to contribute when they know more about their role and the organisation.

This increases with the *length of time* the individual has been in the organisation. **Responsibility** can make individuals more satisfied and to also be more *proactive* with their duties. On the other hand less *responsibility* can have the opposite effect on the individuals' satisfaction and willingness to be *proactive*.

Personality sometimes can filter through in an individual's role, and makes them more proactive than the role might require. **Information overload** can lead to reduced *understanding* for the recipient, and could also lead to the recipient not being interested in future information sharing activities. This can be as a result of recipients lacking interest in that kind of information, or the sender asking too much of the recipients and just sending too much information.

Commitment to duties could increase involvement in the organisation, and if the role involves being proactive, would lead to proactivity as well. This sort of commitment could be a result of personal reasons like having *personal objectives* that align with that of the role, or just a *personal decision*. It could also be affected by *external commitments* which make it difficult to be committed to the organisation.

Narrative for Emotion

The main affective feelings or factors that were identified from coding are: **Enthusiasm, willingness / unwillingness, disaffection, satisfaction / dissatisfaction, feeling of power, and low morale, and feeling obliged**

Enthusiasm to be involved is a feeling that arises as a result of being satisfied with the job, being interested in the particular role or organisational objectives, or being knowledgeable about your particular role in the organisation. The opposite of these would mean reduced enthusiasm to get involved with sharing information proactively in the organisation. *Feeling of interest from colleagues* makes the information sharer feel that it has been worthwhile sharing information proactively, and would probably encourage him to do it more in the future. *Gratitude and praise* from colleagues is also similar to colleagues

showing interest, and it makes the sharer to feel encouraged and continue to be proactive with information.

Willingness / unwillingness can be a result of past information sharing experiences with colleagues, also the commitment of the information sharer, and their sense of ownership of projects and tasks. **Satisfaction / dissatisfaction** is more about increased responsibility and proactivity, but can change when there is no opportunity for this.

Feeling of power and low morale is a direct result of proactivity, if an individual's ideas and information are received well by colleagues then there is a sense of power. If it is not received well, then the individual might have a low morale. **Feeling obliged** is because of the role that a member has. An individual in a particular role will feel obliged to get information that is relevant to that role and share it with colleagues.

Narrative for Power Relations

For power relations, there were various points that were raised, but they fell under these major categories: **Personal agendas, differences in opinion, conflicting objectives, authority and control, competition for roles, conflict of interest, and politics and irrational behaviour.**

Competition for roles is a result of the nature of the organisation and sometimes when there is a project; members implicitly have to compete for these roles, which means individuals sometimes act in their own interests. **Conflict of interest** is similar to members competing for roles, but it is more than that, because people have external commitments and sometimes issues being discussed in the organisation can affect those external commitments, which could make individuals biased in those discussions.

Differences in opinion is a natural occurrence in any organisation, but the difference in this case is that it can lead to individuals not being committed to a project they do not feel strongly about. **Politics and irrational behaviour** is related to conflict of interests, in the sense that people behave irrationally when discussing issues that are of interest to them. The politics refers to people behaving irrationally and trying to manipulate issues.

Authority and control as a sense of satisfaction, directly affects how enthusiastic individuals are in their role, because of the sense of ownership that they feel as a result of having control over what they do. **Conflicting objectives** result from a misunderstanding of organisational objectives and makes individuals non-cooperative, and if they are opposed to an idea, they do not offer any encouragement. So this disenfranchises the proactive individual because colleagues do not show interest.

Personal agendas is similar to having disagreement on objectives, because it also leads to less cooperation, just like those that have personal agendas do not show genuine interest and enthusiasm in fulfilling objectives, which reduces support for proactive individuals and discourages them from being proactive in the future.

Narrative for Context

The main factors that have been found to be part of the context in this department are: **Communication channels, break in communication, availability of projects, competition for roles, size of organisation, and organisational objectives.**

Communication channel is a major influence on individuals' ability to be proactive with information sharing, and also how proactive they can be. The type of communication channel determines if individuals need to be in *close proximity* or not, it also determines the relevance of *using technology* to aid information sharing. The communication channel also determines how responsive colleagues are when information is shared with them, which could impact on the sharer's motivation to be proactive in the future.

Nature of the job is a general contextual factor that determines individuals *commitments, satisfaction, roles*, and ultimately *proactivity*. This is a very important contextual factor, and in this case, it reduces commitment drastically, and also causes a break in communication, which makes it more difficult to share information proactively. However, the nature of the job in this case also makes it easier to be proactive and encourages proactivity with regards to the roles that exist in the organisation, and most people have an increased sense of satisfaction.

Narrative for Process

The main factors that have been identified to be part of the process are: **finding a balance between being too proactive and complacent, scrutinising consequences of proactivity, accepting limitations of colleagues, use of relevant technology, increased frequency of meetings, and focus on personal interests.**

Scrutinising consequences of proactivity is a safety mechanism which a member of the organisation suggests should be carried out, in order to protect the organisation from making changes that might end up being detrimental to the organisation. **Accepting limitations of colleagues** is a way of dealing with a colleague whom you do not have business trust in (trust in the ability); instead of raising the point and possibly risk further disruption, members are ready to accept their colleagues' limitations.

Increased frequency of meetings is suggested by one of the members to help tackle the break in communication that they have and help colleagues to keep up to speed better. **Focus on personal interests** is a bit selfish, but with an organisation with mostly volunteers, allowing individuals to focus on their interests, would motivate them. However this might lead to a conflict of objectives, which is not good either.

Finding the right balance is a process in response to *information overload*, and the *nature of the job*. By sharing too much or too little information, it does end up making it difficult for *colleagues to understand*. Finding the right balance, could also be between being proactive and complacent, so that they get maximum benefit from proactive information sharing.

Use of relevant technology helps to improve information sharing and makes it easier to share information proactively, through the preferred *communication channel*. However, because not everyone is conversant with technologies and is willing to use it, it poses a threat to involvement.

Consolidation of the SNA and Interview Findings

The correlation between having a proactive personality and sharing information actively is high in the information sharing network of case two. In this organisation members are mostly volunteers and external commitments keep them sometimes from being proactive. From the evidence it is more important to check the consequences of proactivity in the organisation, because any change it brings about that is not the right one, might affect morale.

There are twice as many formal relationships than there are informal relationships in this organisation, and it is due mostly to the fact that colleagues do not spend a lot of time together either at work or socially. However those that share informal relationships still have a higher information sharing tendency. The most used communication channel in the organisation is an equal split between emails and conversations, and this again is due to the little time they spend together because of the frequency of meetings, so they have to make up for that with follow emails.

There is a very high density and reciprocity in the network and this is influenced by the nature of the organisation, which enforces the need to share information. To achieve the organisations objectives, they need to make sure everyone is aware of certain issues, and also to make decisions, they are legally bound to ensure everyone, at least on the board of trustees, is informed.

Wellbeing, as a factor that influences proactive information behaviour, was tested in the social network analysis with a very low data count, but showed a medium correlation, with a significant result from the random permutations. This correlation could be as a result of most members of the organisation being volunteers; “it is not exactly the most pressing thing in my life”, as participant A/2 puts it, so when they are down, it is more likely to affect their willingness to be involved and share information.

While the role matters in this organisation, it is not as important as in other organisations, mainly because the organisation has a flat structure, with most people sharing a collective

role of trustees, though they are assigned different responsibilities. So it does give that extra incentive to seek and share a particular kind of information associated with their role.

Finally trust has a correlation with the tendency to share information actively, although the evidence shows some participants saying it would not affect their information sharing, while others said it would, and in some cases it would be based on the type of information. The social network analysis results show that trust does affect the information sharing tendencies of members in the organisation.

Summary

This chapter presented the analysis of the data gathered from the second case used in this research study. Within each case there are variations of the factors that influence proactive information and also similar factors between the different cases.

The nature of the analysis was described, social network analysis was used to analyse the quantitative data and a grounded theory approach to analyse the interview data. The nature of the data collected was also described and the themes that were generated from the data were explained. The analysis was done in five categories; Direct and indirect factors, emotions, context, power relations, and process. Each category viewed the data from a different perspective, hence generating a richer picture of the evidence to support the findings.

The findings from the social network analysis were explained through the use of hypotheses, proved or disproved by the data collected. Network diagrams were also used to visualise the proactive information sharing environments in each case, along with other relationships like formal or informal links. The network also showed properties of the actors, job roles and out-degree, which signified their level of proactivity. The three central actors in each case were identified from the network and together they made up a large proportion of the connections in the network. This supported the point that proactive individuals are very important in information sharing in organisations.

From the social network analysis, having a proactive personality and sharing information relationship with a colleague, increased the tendency to share information proactively. There was also support for the correlation of wellbeing and sharing information proactively in this case, mainly because participants are volunteers, and are more likely to be put off proactive activity when feeling down.

The interview data was analysed by going through the different stages of the grounded theory coding techniques, with the exception of the final theory development stage. This helped to ensure that the findings were based purely on the data collected. The findings in case two are similar to those in case one but, the findings were either given an alternative explanation or, in some cases, not supported at all, while in some instances the findings were the same for both cases.

Having looked at the analysis of the data within each case, the next chapter gives a cross case analysis of the findings, to draw out major themes across the cases and to give a broader picture of the findings.

References

- Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." Journal of Organizational Behavior **14**(2): 103-118.
- Borgatti, S. P. and R. Cross (2003). "A Relational View of Information Seeking and Learning in Social Networks." Manage. Sci. **49**(4): 432-445.
- Borgatti, S. P. and P. C. Foster (2003). "The Network Paradigm in Organizational Research: A Review and Typology." Journal of Management **29**(6): 991-1013.
- Drewberry, C. (2004). Statistical methods for organizational research : theory and practice. London, Routledge.
- Mosindi, O. and P. Sice (2011). Social Network Analysis And Information Systems In Organisations: Highlighting The Need To Understand Human Information Sharing Behaviour. UK Academy for Information Systems Conference. Oxford.
- Noreen, E. (1989). Computer Intensive Methods for Testing Hypotheses: An Introduction. New york, John Wiley & Sons.
- Strauss, A. and J. Corbin (2008). Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory. Los Angeles, California, Sage Publications.

7 Cross case analysis

Introduction

This chapter uses the findings from the analysis of each case in chapter five and six to carry out a cross case analysis to help identify and understand the emergent themes in this study, which influence proactive information sharing behaviour (PISB). The findings from chapter five and six are divided into sections; social, affective, cognitive, environment, and power related factors. These sections are used in this chapter to group, differentiate, and make sense of, the findings across different contexts. The direct and indirect factors from the previous chapters, will be treated together to aid the cross case analysis.

The cross case analysis is carried out using Eisenhardt's (1989) proposed method of cross case analysis. Eisenhardt proposes three types of cross case analysis; The first type is selective discussion and analysis of categories, cases and data types, by selecting categories that are represented across cases and looking for group similarities and intergroup differences. The second type proposes that a pair of cases is selected and similarities and difference analysed between each pair. The third type of analysis should be done by dividing by data source to help give unique insights with the different data on the cases.

The first type of cross case analysis is used in this chapter and the next section selects categories and discusses the case similarities and inter-case differences.

Figures 7.1, 7.2 and 7.3 all list the factors in their respective groups for cases 1A, 1B and 2.

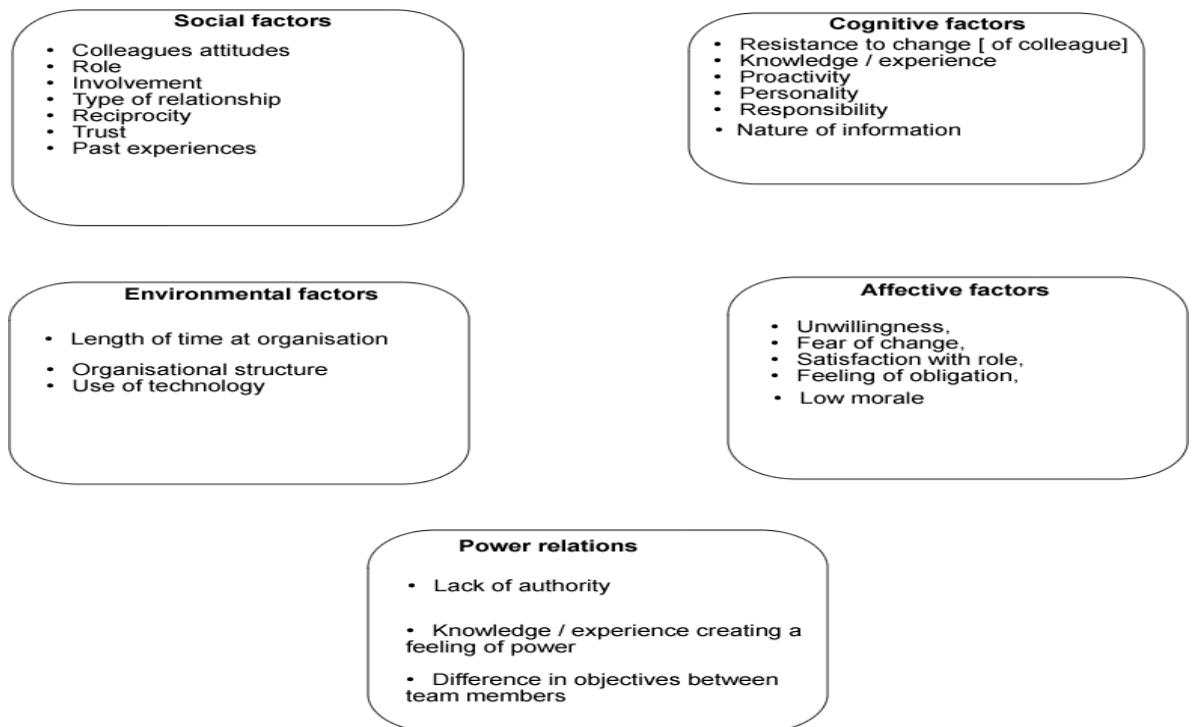


Figure 7.1 Categorised factors for case 1A

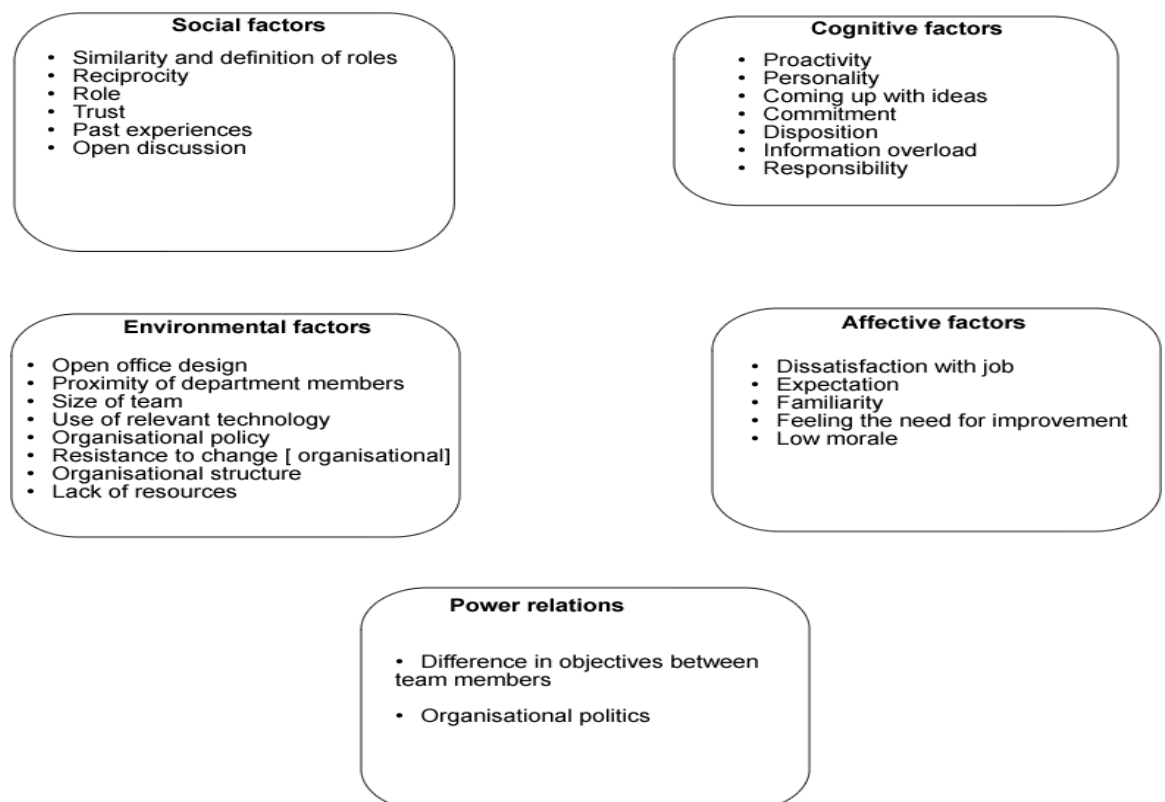


Figure 7.2 Categorised factors for case 1B

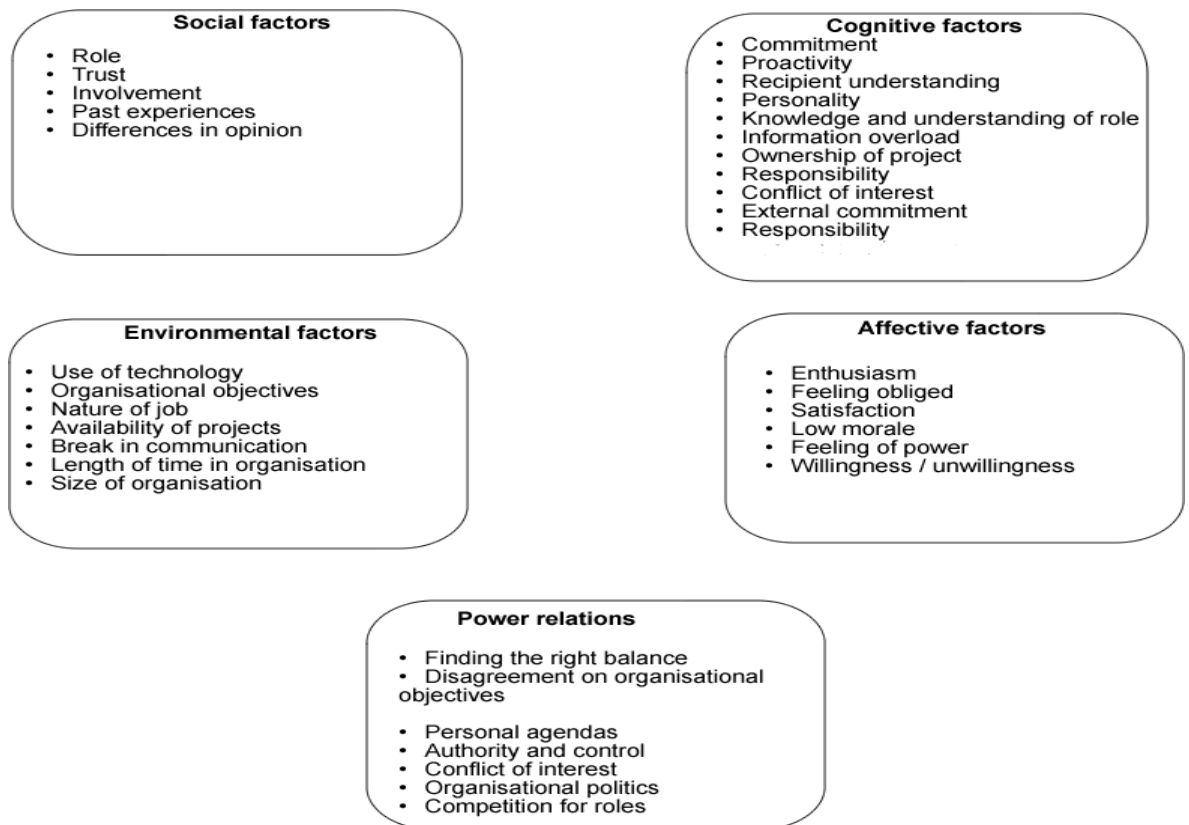


Figure 7.3 Categorised factors for case 2

Selected factors which are relevant across cases would be discussed under each category, using Eisenhardt's (1989) first proposed strategy, to look for within-group similarities and intergroup differences.

Social Factors

The social factors refer to those factors which influence proactive information, that are manifested in interactions between individuals in the organisation, they are analysed across all the cases. The similarities and dissimilarities of the social factors across all three cases are discussed next.

Role – Social Factor

The role is simply the business role which the individual plays in helping the organisation fulfil its objectives. In any social group like an organisation, the role is very important, because it, not only determines what the individuals focus on, but also the type of activities they would be involved in within the group, and in the context of this study, the nature of the information they would be in contact with, and are therefore be able to share.

Similarities across Cases

Across all three cases, it has been mentioned in agreement that the role is important in determining how proactive individuals share information. Individuals who are in more prominent roles, that have more responsibility, tend to be in positions to share information actively, as opposed to those with less responsibility, who would be mostly on the receiving end of information.

There is also a less convincing argument from the evidence that personality plays a part when individuals carry out their duties. Some participants said that it is the role which mostly influences proactive information sharing, and others saying a bit of both personality and the role. Another issue that affects an individual's commitment to the role is satisfaction in that role.

Differences between Cases

In case 2, most of the participants are volunteers, and as such one would question their level of commitment, but this is where the personality of the individual comes through, to help them be proactive, regardless of their role. In case 1A and 1B, they are paid to be in their role, so being there is a huge incentive to be proactive in their role, even if they have a less proactive personality.

Another reason research participants gave for being proactive, was satisfaction with their role. In case 1A participants had strong feelings about the lack of support from management and a perceived management bias, which affected their satisfaction with their

respective roles. In case 1B participants feel the need for improvement, as they want to make progress in their career, and in case 2 it was the competition they have for roles, the size of the organisation and the need to focus on their personal interests, which affects their job satisfaction.

Factors which determine the participants' level of satisfaction and commitment to the role can be attributed to the nature of the job and the organisation. These are contextual factors which are very important in determining how proactive members of a group become.

Reciprocity – Social Factor

Reciprocity, which is the mutual exchange of information between members of a group, would help sustain proactive information sharing within the group, because it is a recursive phenomenon, as one individual shares with another, the other feels the need to share with him or her, and the cycle continues, which sustains proactive information sharing.

Similarities across Cases

Though reciprocity is only explicitly mentioned in case 1A and 1B, it is true for all the cases, when the amount of information sharing between informal relationships is taken into account. Reciprocity is built by trust and expectation between colleagues, as is mentioned in case 1A and 1B, and these are more likely linked to sharing an informal relationship with colleagues. From all cases, it is clear that those who share informal relationships are more likely to share information with each other.

Difference between Cases

There are no real differences between cases on the issue of reciprocity, except that it was not mentioned in case 2, and this could be explained by their personal motivations for being part of the organisation, the participants would expect reciprocity from colleagues.

Involvement – Social Factor

Involvement is similar to proactivity, in the sense that members take part in an activity. However with involvement it does not have to be a proactive activity, it could just be being involved in decision making process or keeping up to date with the situation in the organisation. How involvement is viewed in the different cases has a link to the amount of responsibility that members are given or are willing to take up.

Similarities across Cases

Involvement is not mentioned as a huge issue in case 1B and this is probably because all the roles have a high level of responsibility, being a buyer or a quality engineer. Things are always being purchased, and colleagues across the site keep them busy with requests, so participants in case 1B are always likely to feel involved.

In case 1A and case 2, involvement was an issue, and the similarity they share is the increasing need to learn and to increase their knowledge of the organisation and job role, which ultimately results in individuals being more involved in the organisation.

Difference between Cases

Where the difference lies between the cases is in the nature of the roles. In case 1B where the roles have high responsibility, involvement is not an issue, but with case 2 and case 1A not all the roles have a high level of responsibility, so it becomes an issue, which is influenced by several factors.

In case 1B the organisational structure, which determines where a particular role is situated in the group, affects how involved whoever occupies that role can be. The use of technology in case 1B is an issue as well, because some members do not like to learn new technologies, they tend to avoid getting involved in activities that involve technology.

In Case 2, where most of the roles are voluntary, the main issue surrounding involvement is actually the commitment of members, which is affected by several factors. In case 2, these factors include: conflicting objectives, conflicts of interest, external commitment and personal agenda. The other issue, which is ownership of projects, can be grouped with

personal agenda, as most people tend to be more involved in projects which they champion.

Again, from the differences in factors that influence involvement, they are contextual, and are due to the type of organisation and the nature of the roles.

Past Experiences – Social Factor

Past proactive information sharing experiences can lead to building reciprocity and / or reduce willingness to further share information proactively.

Similarities across Cases

Across all the cases, the outcome of past information sharing experiences can affect willingness to share proactively in the future. Although not every participant alludes to this, they sometime used terms that insinuate this, like saying “I would do things differently”. While this does not affect information sharing upon request, because you have to share information if your colleague requests it, it does affect sharing information proactively. The other similarity is in the desired outcome of information sharing, like: problem solving and feedback.

Differences between Cases

The impact that past information sharing experiences have in each case is different, because of the nature of the job. In case 1A, the administrators have it as a duty to pass on information to the technical staff, so past experiences might not seem to affect them. Same with the technicians, people mostly request help when they need it, and when the experience is not pleasant, even though they might be less willing to share again in the future, they will still have to.

In case 1B the importance of past information sharing experiences was played down, because the role requires that they share various kinds of information amongst themselves in order to function as a group, so while an unpleasant past experience might make an individual less willing to share information in the future, they will have to.

In case 2 past experience is not seen as a problem, because individuals have a personal agenda, they are willing to share information to sell their views. The logic of being less willing to share information proactively due to past experiences, still applies here for a negative past experience, the only difference is that participants would proactively share information regardless, because they need to get a point across, either for the sake of the organisation or as their own personal agenda.

Again these differences are mainly tied to the nature of the organisation and the role, with the members having to adapt their information sharing behaviour to fit with the realities of the organisation.

Trust – Social Factor

Trust in proactive information sharing is more important than it is when it comes to information sharing upon request. With proactive information sharing, most times participants are not compelled to share, though in some organisations that might be the case, but more often than not there is no compulsion, which makes it easier for doubt to get in the way of sharing the information proactively.

Similarities across Cases

There is a general consensus across all cases from the evidence, that trust between colleagues will grow as they spend more time together in the organisation. Also the effect of trust on information sharing could depend on the type of information being shared. This was not narrowed down enough, but the main categories were personal and work information. This was insinuated in case 1B and case 2, and should also apply in case 1A, though discussed by participants.

Differences between Cases

Though not mentioned in case 1A, in case 2 the evidence shows that while trust may affect willingness to share information generally, it does not really affect their willingness to share business information with colleagues, because they have the success of the group at

heart. However, in case 1B, a few participants alluded to the point that they may not share information openly with someone they did not trust, compared to someone they trust. The type of relationship also plays a part, because sharing an informal relationship with a colleague would reduce the uncertainty and build trust, which would lead to more open sharing.

Type of Relationship – Social Factor

The type of relationship, formal or informal is not discussed a lot in the interview because of the overwhelming evidence from the social network analysis which shows that colleagues tend to share information more actively with those who they share an informal relationship with. There were no differences across cases, the only issue was that it was not mentioned explicitly during the interviews in case 2.

Open Discussion – Social Factor

Open discussion was only mentioned in case 1B, and the participants felt this was a direct result of the office design, and because they preferred to share using conversations. Having open discussions in small groups, they say, makes it easier to share information and for people to help colleagues. In a bigger group though, they thought it might lead to people hearing information they did not need, and serve as a distraction.

Cognitive Factors

The cognitive factors refer to those factors that influence an individual's PISB, and are manifested within the individual. These cognitive are discussed next across cases.

Proactivity – Cognitive Factor

Proactivity, which is the act of proactively getting involved in an activity, including, but not limited to sharing information proactively, has been found to correlate highly with the tendency to share information proactively. An individual who exhibits a high level of proactivity, can be said to have a proactive personality (Bateman and Crant 1993). The way this proactivity has been perceived in all the cases is similar, with certain exceptions.

Similarities between Cases

The general consensus by participants across all cases is that the main determinant of proactivity is their role, and some also felt that their personality played a role. However, their role could also serve as a hindrance to them being proactive. In case 1A and 1B, participants cited a lack of authority and organisational policy not giving them the freedom to be proactive when they would like to.

Knowledge is another factor which determines individuals' willingness to be proactive, as in case 2, members do feel the need to be proactive if they do not possess the level of knowledge and understanding they need in their role. In contrast, the will to learn more can also lead members to get involved in proactive activities.

The final similarity which cuts across all cases in this category, is that disagreement on objectives between members could lead to individuals not willing to be proactive in certain situations. This is stated in different ways in each case, and the causes are different, but the general message from all cases is that it leads to less proactivity on the part of individuals who feel their perceived objectives are not being met.

Differences between Cases

For case 2, some participants believe proactivity is not always a good thing, in terms of the change that it brings about in the organisation. There is an emphasis on scrutinising the possible consequences of proactivity and finding a balance between complacency and proactivity, unlike the other two cases, where participants feel that being proactive is always good for the group. External commitments come into play for those in case 2, as

they are mostly volunteers, this makes it more difficult for them to be proactive when other commitments get in the way. This is not an issue in case 1A and 1B as this is their primary commitment and they are paid to do just that.

Finally, lack of resources is a problem in case 1B, which restricts participants to 'firefighting', to borrow a one from one participant. They are not able to be proactive, and instead they have to be reactive. While this holds true for case 2, unlike case 1B where it is resources like time, and equipment, for case 2, it is mostly financial resources, and time as well. In case 1A, this does not come up as a restriction, because of the nature of their job, which is very technical, and the only kind of proactivity that would be going on there, is helping out with technical knowhow.

Responsibility – Cognitive Factor

Responsibility is part and parcel of the role, and the nature of the role determines the amount of responsibility.

Similarities across Cases

Responsibility in all cases is viewed as a factor which comes with expectations. If an individual is given a certain amount of responsibility, there is the expectation that they would do all that is necessary to fulfil that responsibility.

Difference between Cases

In case 1A, responsibility they believe comes with increased knowledge on the job, as it is a technical role, they feel the more knowledge you have; the more likely you are to be given a higher responsibility. While this might hold true in other cases, it is not explicitly stated. In case 1B responsibility is seen as part of the job, but some participants did admit that it can lead to them having a low morale, because of the pressure that responsibility brings with it.

In Case 2 while some roles which are paid come with high responsibility, in the voluntary roles, they have a certain level of responsibility, but it is up to the individual to determine

how high or low the responsibility can get relative to expectation. Also because of the project based nature of the organisation, participants feel less satisfied when there are no projects and hence no responsibility, and understandably feel satisfied when there is more responsibility. Participants in case 2 also feel that more responsibility gives them a bit more authority, and the need to focus on their personal interest drives them to seek more responsibility within the organisation.

Information Overload – Cognitive Factor

Information overload is the effect of passing on too much information to colleagues, coupled with little understanding of the information, which results in recipients not understanding what is being passed on and in some cases not wanting to receive any more information.

Similarities across Cases

The similarity across cases has to do with the consequences of information overload, which is that it leads to distraction and less understanding.

Difference between Cases

For case 1B, the information overload is primarily caused by the fact that they are in an open office, and people overhear things, or get overwhelmed with information. In case 2, it is a case of being sent too much information, in this case, via email, which leads to information overload. So there seems to be two different forms of overload represented in these cases, the first being an overcrowding of information, relevant and irrelevant, leading to distraction. The other, being a flooding of relevant information, but the amount of information leads to an overload, which leads to less understanding.

Type of Information – Cognitive Factor

Type of information is basically the different categories of information as perceived by the research participants. The main categories used in the evidence in this study are personal, work, and specialist information.

Similarities across Cases

The only similarities are in the separation of information into different categories, and depending on what category, a certain course of action is taken.

Differences within Cases

In case 2, the types of information an individual would focus on, was said to be determined by their role. Also the need to share information with a colleague is determined by the topic or specialist area the information covers, before it is deemed relevant to be passed on to that colleague. The level of detail of the information is also affected by this, because depending on the topic, one might decide to send an overview or detailed information.

In case 1B the type or nature of information was referred to as personal or work related, and trust would only affect information sharing in the group, depending on the type of information.

Knowledge / Experience – Cognitive Factor

Knowledge in this study is referred to as specialist knowledge with regards to a particular role, experience from doing that role over time, or indeed general understanding of the organisation and its operational processes over time as well.

Similarities across Cases

Knowledge is perceived to be acquired over time, in both case 2 and case 1A, and the more knowledge that an individual acquires, the more likely they are to get involved with proactive activities, because they have something to share.

Differences between Cases

In case 1A the knowledge that was referred to was technical knowledge from doing the job, and it puts people in a position of responsibility and power. In case 2 the knowledge, though could be role related, was mainly about the organisation and its objectives, how it has achieved its objectives in the past, and plans to continue to achieve those objectives. The difference lies in the focus of the knowledge that is acquired, one on the role, and the other on the organisation as a whole.

Personality – Cognitive Factor

Personality in this study, is about the individual's general personality, it could be proactive or not, just the general personality of an individual, and how that shines through in a group or in an organisation.

Similarities across Cases

In case 1A and case 1B, participants agree that their personality pushes them to be proactive, but that proactivity can be restricted by the role. Although an individual might have a proactive personality, they might not be able to do much in terms of sharing information proactively because of the restriction that the role imposes. On the other hand, if the role does allow proactivity, then a proactive personality would shine through.

Differences between Cases

In case 2 an individual's personality is perceived to influence the commitment the individual has towards projects in the organisation, because in the roles do not really restrict them, as much as an individual can be proactive, they are encouraged to do so. While in case 1A and 1B, commitment is not the issue, as they are obliged to be committed to what they are assigned to do.

Environmental factors

The environmental and contextual factors refer to those factors that influence PISB, and are particular to the organisational setting and the organisation as a whole. These factors are analysed across cases next.

Use of Technology – Environmental Factor

There is the assumption that technology makes it easier to share information, and the easier it is to share information, the more willing members would be able to share proactively. However the use of technology in organisations can both hinder and promote proactive information sharing. The type of technology and the impact the technology would have, will be determined by the most used communication channel between group members.

Similarities across Cases

Technology, if applied in line with the frequently used communication channel in the organisation, might make it easier for individuals to share information. The reverse is also the case in all three cases, because if any individual has a certain fear of technology or is not able to adapt to the technology it would make it more difficult for them. However, this is not to say that using technology would increase individuals' willingness to share information proactively, just the that it would be easier, it is fair to assume that the easier it is to share information, the more likely people are to share information proactively.

Differences between Cases

There are no real differences in terms of the impact technology would have on proactive information sharing between the cases.

Organisational Objectives – Environmental Factor

The organisational objective is the most important environmental factor to consider, because it influences many other environmental factors which also influence proactive information sharing in the organisation.

Similarities across Cases

The organisational objectives in case 2 play a huge role in members' commitment and involvement, because there are mostly volunteers, so members need to feel a strong conviction and affinity for the organisational objectives for them to be actively involved. As with the case in many instances in the evidence from the interviews, when members did not agree totally with the direction of the organisation, they tended to take a back seat and not be as involved as they might have been.

Differences between Cases

The organisational objectives are mentioned during the interviews only in case 2, and this is evident because case 2 is a whole organisation in itself, whereas case 1A and 1B are departments within a larger organisation, so the larger organisational objectives do not seem to affect them directly. However other factors that are a fall out of the organisational objectives, like the organisational structure, the organisational policy do affect participants case 1A and case 1B.

Organisational Policy – Environmental Factor

The guidelines, rules and regulations that have to be adhered to in the organisation are given in line with the organisational objectives. The organisational policy is only referred to in case 1B, this is due to the nature of their job, which means that they have to liaise with suppliers outside the organisation. Although no specific instances were mentioned, the policy is said to stifle their proactivity, in terms of coming up with ideas, and the freedom to be proactive. While this will inevitably also affect members of case 1A and case 2, it was not mentioned, and the level of the impact was not discussed.

Resistance to Change – Environmental Factor

This is the friction which organisational policy causes, because even if members try to be proactive, to bring about change with sharing of information, there is not much room for change. This again makes individuals not to put in the effort to be proactive, when they

feel there will not be any meaningful outcome. There were no apparent differences between the cases.

In case 1A, this resistance is linked to the use of technology, where individuals are not willing to learn new technologies, and as a result display some form of resistance.

Organisational Structure – Environmental Factor

The structure of the organisation will have an effect where there is a significant number of employees, which is why it is only brought up in case 1A and case 1B. In case 2, the structure is less likely to bother members, because it is an almost flat organisational structure, so members do not have problems with who they report to and how much work they are able to get done as a result.

In case 1A the organisational structure restricts members in what they can do, which is related to the power structure in the organisation. They have to go through a manager before they can get things done, and they feel this hinders them sometimes. In case 1B, it is similar, the manager has a different background to a sub group in the department who belong to another role, and the members of this subgroup feel as though they are not involved in decision making in the department, which leaves them feeling disinterested.

Size of group / Proximity of Members – Environmental Factor

The size of the group in the organisation or a subgroup in the organisation matters, with regards to proactive information sharing among members. In case 1B, the size of the group influences how easy it is for information to flow between members. In a small group, it is easier to pass information around and to have an open discussion. Whereas in a larger group, the rate of diffusion of information would be less, because it will take longer to spread, thus affecting the information sharing network.

The proximity of the members is also important, the closer they are to each other the easier it would be for information to flow amongst them, when they need to share. This was brought up in case 1A and 1B, because they work together on a daily basis, but not in case

2. In case 1B where proximity is acknowledged as a positive for proactive information sharing, participants felt it was the structure of their office that helped to make this proximity possible.

Open Office Design – Environmental Factor

Similarities across Cases

The open office design in case 1B is credited as the reason colleagues are close together, and are able to have an open discussion, which leads them to easily access information they may need, or to give a colleague information that might be useful to them. In case 1A, they also have an open office design, but it was not brought up. However, the evidence shows that having an open office design can also lead to information overload, as individuals might pick up irrelevant information.

Differences between Cases

In case 2, office design is not much of a factor because members are not always together, so they share most information via email.

Lack of Resources – Environmental Factor

Without resources, organisations or the groups within them are seldom able to carry out their duties, and with this restriction, it is hard for people to be proactive.

Similarities across Cases

Lack of time and human resources do not allow members of case 1B and case 2 to be proactive with information sharing. Members in case 2 are not able to give up as much time for the organisation, because of other commitments, also there are not enough members to help cover all the relevant areas, which hinders progress. In case 1B, there is also the problem of time, which stems from not having enough human resources as well, and makes people less likely to be proactive as they lack the time.

Differences between Cases

The other resources that affect proactive information sharing in the different cases are funding and equipment. In case 2, the main resource that is lacking, is funding and time. The funding reduces availability of projects, and affects morale. In case 1B, it is a lack of equipment which makes it more difficult for participants to do their jobs, and reduces their satisfaction, which ultimately affects their level of involvement.

Length of Time in Organisation – Environmental Factor

The amount of time individuals spend together in a group and the amount of time a particular individual spends carrying out duties in a group, helps to develop two things; the former helps to build trust between the group members, as they get to know each other better and begin to trust each other more. The latter builds the individual's knowledge and understanding of, not just their role, but of the organisation as well, which makes them more valuable in the group and possible candidates for more responsibility, which would require them to be more proactive with sharing information.

Similarities across Cases

In every case, the more time individuals spend, either in the role or within a particular group, leads to increased trust and knowledge.

Differences between Cases

There were no differences between the cases.

Affective factors

Affective factors refer to the emotional antecedents or consequences of PISB in organisations, they are discussed below, with the factors that cut across cases given more attention. The scenarios where these emotions arise are explained in each case, including and the possible consequences.

Enthusiasm – Affective Factor

Similarities across Cases

For a member of a group to be proactively involved with the projects in that organisation, they need to share a certain interest in the objectives of the organisation, and this is where enthusiasm comes in, and is a common trend across the cases.

Differences between Cases

In case 2, enthusiasm is a consequence of members being satisfied with the job they do in the organisation, and this leads to a certain level of commitment and involvement in the affairs of the organisation. In case 1B participant's enthusiasm is affected by personal disposition which is affected by several factors, and this goes on to affect their level of proactivity. In case 1A, when they have had negative past information sharing experiences, their enthusiasm to share information with that colleague diminishes.

Felling Obligated – Affective Factor

Similarities across Cases

The feeling of Obligation has to do with responsibility and the enthusiasm to carry out the duties of the role a member occupies. Though there is a problem with commitment in case 2, members do feel obliged to get involved and share information that is related, particularly, to their role, in order to keep progressing the group's objectives. In case 1A the feeling of obligation also comes with the role and responsibility, and it ensures that members are willing to help each other with information, when they need to.

Satisfaction / Dissatisfaction – Affective Factor

Similarities across Cases

Though individuals feel satisfied or dissatisfied for different reasons, from the evidence, generally when an individual is provided with the right tools and support, and has the right level of knowledge to carry out his / her duty, there is a level of satisfaction.

Differences between Cases

In case 2, members are mostly satisfied when they are given duties that are of interest to them. When members get the chance to be proactive, to champion a project that they have an interest in, this also brings a lot of satisfaction to them. While in case 1B, the lack of resources to do the job, sometimes makes members dissatisfied with the role and with the job, and in case 1A the lack of support from management leaves individuals dissatisfied.

Low Morale – Affective Factor

Difference between Cases

Individuals can experience low morale in different situations, but from the evidence this emotion comes in case 2 when members attempt to be proactive, and their ideas and information shared are not well received by colleagues. In case 1B, pressure from too much responsibility could make members to have a low morale.

Feeling of Power – Affective Factor

The feeling of power, as referred to in this study is when an individual within a group feels important and feels like they have a greater influence than the other members in the group.

Differences between Cases

In case 1A, because most of the roles are technical, the more knowledge members have, the more power they perceive they have, because they would be in a situation to pass on information rather than receive. The increased knowledge could put a member in an important role as well, and the affective outcome would be just the same. In case 2, this emotion is felt when a member is being proactive and their ideas and information are being

received well by colleagues, this leads them to have this internal feeling of power and influence.

Expectation – Affective Factor

The feeling of expectation mostly comes with the role and responsibility that an individual is assigned. Colleagues expect a certain level of commitment in performing those duties and also share information when needed.

Similarities across Cases

This is shown in case 1A and 1B, where a certain outcome is expected from colleagues, and this goes on to affect business trust and reciprocity of information, because members would share information if they expect their colleagues to share with them.

Difference between Cases

This affective factor is not mentioned in case 2.

Fear of Change – Affective Factor

Difference between Cases

In case 1A this emotion was associated with technology. Some members who are not willing to adopt new methods of sharing information would experience this emotion when there are attempts to improve information sharing by introducing a new method of communication, or anything else aimed at creating change in the way the group operates, which they might not be comfortable with. Also in case 2 when a proposed change is perceived to affect any individual's current status negatively, there is a conflict of interest, which will lead to fear of that change.

Power Relations

These are factors which relate to individuals trying to exert influence on each other, and encourage or hinder PISB as a result. These are analysed across cases next.

Difference in Objectives between Colleagues – Power Relations

Similarities across Cases

When there are conflicting objectives between colleagues, it could affect their willingness to get involved and share information proactively, and this applies across all the cases.

Differences between Cases

In case 2, the organisational objectives are moulded by the input of the participants, and most people have been involved with the organisation because they are passionate about the organisations objectives. In case 1B, conflicting objectives came about because there were two conflicting roles within the group, and some participants felt the manager, whose background was in one of the roles, had different objectives to colleagues in the opposing role.

Lack of Authority – Power Relations

When individuals do not have authority to make changes, then they are less likely to be proactive, because proactivity brings change with it.

Difference between Cases

In case 1A the members simply do what they are required to do by the manager, and they do not have the authority to change things or make any decisions. In case 1B there is more flexibility given to members but they still cannot make any changes due to organisational policy. In case 2 the control sits with the group and individuals can become more

influential or have more control over changes, depending on the role they play, so those with less responsibility generally have less authority.

Personal Agendas and Conflict of Interest – Power Relations

This happens mostly in the case of a voluntary organisation, which is case 2 in this study; individuals have personal agendas, and as such will try to drive them through whenever they can. This also means that sometimes, proposed changes conflict with their personal agendas, and makes it difficult for the individual to be involved proactively. This can also happen in case 1A and 1B, though not mentioned explicitly, individuals can be less proactive with issues that conflict with their personal agendas.

Summary

The findings from within each case in chapter five and six were grouped into different sections; social, affective, environmental, cognitive and power related factors. The main findings from each section that cuts across two or more cases were discussed in this chapter. Using Eisenhardt's first proposed method of cross case analysis, selected categories were discussed, using the differences and similarities across cases to fully explain the findings in that category.

Some of the factors discussed across cases address similar issues, like: reciprocity and trust; proactivity and personality; and knowledge, experience, and length of time in the organisation. These findings that address similar issues will be grouped together for further analysis in the next chapter. These groups of findings will make up the major emerging themes from this study and will be critically analysed using literature in the next chapter.

References

Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." *Journal of Organizational Behavior* 14(2): 103-118.

Eisenhardt, K. M. (1989). "Building Theories from Case Study Research." *Academy of Management Review* 14(4): 532-550.

8 Emerging themes

Introduction

This chapter explores the emerging themes from the analysis in chapter five, six and seven, and discusses similar themes in literature, to understand how much of the findings are aligned with existing knowledge or unique to this study.

The factors that influence proactive information sharing behaviour (PISB) are presented using an onion model to show the organisational context, social and cognitive context. Then a model is used to illustrate the different stages of PISB and the theories that might trigger the transition to the different stages.

Major Research Themes

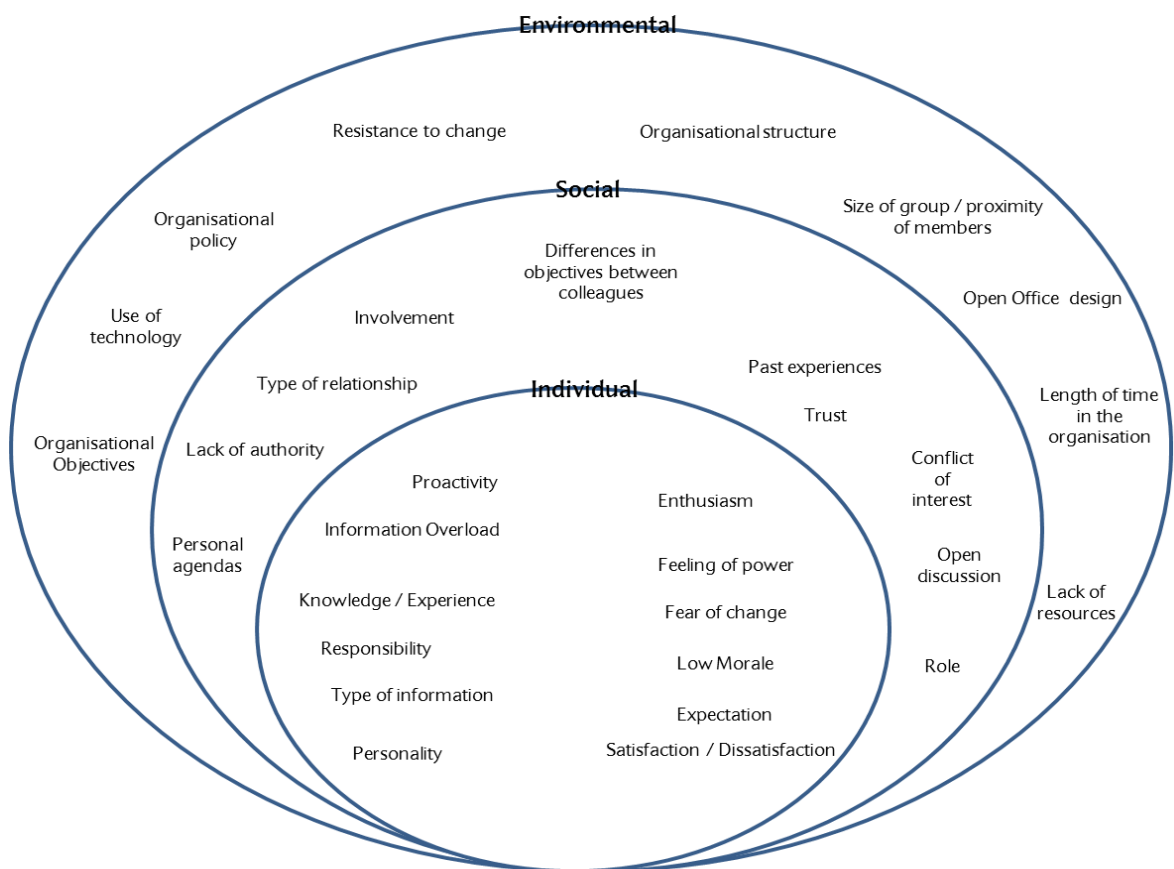


Figure 8.1 Factors Influencing Proactive Information Sharing Behaviour

Figure 8.1 represents the final set of factors that have been found to influence proactive information sharing behaviour in this study. The factors that affect behaviour in general can be categorised in different ways. In the individual case analysis in this study, the factors were split into; direct, indirect, affective, power relations and contextual. In figure 8.1 these factors have been presented using the individual as a focal point and taking into consideration the social and organisational surroundings, since the study focuses on organisations. Using an onion model, the different factors have been split into; individual / cognitive, social, and contextual / environmental.

Factors in the individual sphere are due to the individuals' personality and position, how they perceive their surroundings, and the affective feelings that these perceptions trigger. In the environmental sphere, the factors are imposed on the individual, by the organisation, as a result of the nature of the organisation, and its objectives and policies, and these filters into the organisational culture. While the social sphere is where the individual and environmental spheres meet and the factors here are results of the individuals' interactions with each other, and reactions to the constraints in the environment, and the consequences of these reactions.

The onion model gives a different view of PISB and shows the relationship between the individuals, their environment, and their colleagues, and how they all shape PISB.

From the discussion of the various groups of factors, some themes emerge, some are supported by literature, and some are not quite aligned with existing knowledge in literature, while others are findings specific to this study. These themes have been brought together as the major influencing factors for going through the process of, feeling the need to share information proactively, sharing it, experiencing the consequences, and back to feeling the need again. This process is illustrated and explained in the model of PISB in organisations later in the chapter.

The major emerging themes and findings from this study are critically examined alongside existing literature in the following discussions. These themes have been identified by grouping the factors which are related and influence each other, and are linked together by the narratives from chapter five and six.

Role Responsibility and Involvement

An individual's role in an organisation determines their level of responsibility, which inadvertently influences the individual's sense of involvement within the organisation.

Jarvenpaa and Staples (2001) state that an individual with a sense of self-worth in a group, or who is able to contribute to the organisation, drives his / her attitude and willingness to share information with colleagues. This is related to the sense of involvements in this study, as individuals feel a sense of self-worth and feel involved in decisions and the way things are done in the organisation, they generally get more involved in proactive information sharing activity. This also relates to the theory of self-efficacy by Kulekofski and Heminger (2003) which points to the individual's self-belief and how this leads to them contributing in group situations.

Hyldegard (2004) describes gatekeepers as people who take responsibility to look for information and forward it to colleagues in their organisation. These gatekeepers can be culturally certified, nominated or socially positioned. Culturally certified gate keepers are those who are legitimated through cultural norm within a group, nominated gatekeepers are those who are nominated in a group due to their expertise and knowledge, and socially positioned gatekeepers are individuals who, due to their structural locations in a group, have greater access to all elements that are relevant to the group.

From evidence in this study, the role of an individual within the organisation also plays a huge part in their attitudes and involvement in proactive information sharing.

In organisations (case 2 and case 1), those individuals in roles that have more responsibility and share information are like the nominated gatekeepers, because individuals are promoted into roles based on their expertise and knowledge. But even those without expertise, and not in prominent roles, can also be central information sharers, as we have seen in case 1A and 1B where less senior people are at the centre of the network. This is because they are socially positioned gatekeepers, and have access to most information as a result of their structural position in the network.

Reciprocity and Trust (Past experiences, Type of Relationship)

Informal relationships between colleagues helps build trust and increases the tendency for them to share information proactively with each other. Trust combined with past information sharing experiences, lead to reciprocity of proactive information sharing between colleagues.

Reciprocity has been researched and acknowledged by researchers in information sharing (Chua 2003; Kolekofski and Heminger 2003), and maintaining reciprocal information relationships have been known to influence information sharing in organisations (Jarvenpa and Staples, 2001).

In this study reciprocity also drives proactive information sharing, when individuals share a reciprocal relationship they expect colleagues to return the favour, so tend to share information proactively when they encounter it.

Levin, Cross et al. (2002) found in their study that trust is a very important factor in information sharing. If trust is important in information sharing, it is even more important in proactive information sharing behaviour, because of the risks associated with proactive information sharing, like loss of reputation or even the energy and time needed to share proactively. Individuals prefer to share information with colleagues they know better and trust, and are more likely to reciprocate the favour. Trust is also affected by past experiences with colleagues, which may improve or damage trust.

Willen and Buelens (2007) suggest that formal systems are less effective than informal systems, when it comes to sharing information. Cross, Parker et al. (2001) also suggest that organisations that support both formal and informal communication systems are more likely to encourage information sharing among members as opposed to organisations that have hierarchical silo structures.

Kahn, Cross et al. (2004) point out that work processes increasingly occur and are facilitated through informal networks instead of traditional formal structures. All these views are echoed in this study, as all three cases used, showed overwhelming support for

the argument that informal relationships foster proactive information sharing better than formal relationships. Individuals share information proactively with those they share informal relationships with and at a higher frequency than those they share formal relationships with.

Open Office Design, Open Conversations, and Information Overload

With open office designs, and teams encouraged to have open conversations, colleagues are able to share information proactively with each other. However, sharing information proactively in an open environment, and with tools that promote information sharing, make it easier for information overload to occur.

In a survey of large private organisations, Accenture (2007) found that flooding the workplace with information via emails and BlackBerrys, is a major reason why participants experience difficulty with information; use of technology is addressed in a separate finding.

Information overload is a perception of the individual that results from too much work information being passed on; more than what can be handled, this results in stress for the individual (Wilson 2001). According to Lastrebova (2006) information overload occurs when; the volume and spread of incoming information is beyond processing capacity; time needed to process information exceeds available time; receipt of more information than is needed or wanted to function effectively.

Eppler and Mengies (2003) identified groups of causes of information overload:

- Personal factors e.g. senders failing to filter information properly
- Information characteristics like decreased information quality and relevance
- Organisational design factors; technologies such as email, and faster access to information

Information overload can even be more of a problem in proactive information sharing, as the proactive sharers are less likely to filter information which will affect the information quality and relevance to the recipient, and with the asynchronous nature of proactive information sharing, where the recipient does not have to request the information they are more likely to experience the different aspects of information overload.

Proactivity and Personality

Those with stronger proactive personalities tend to get involved in more proactive activities than those who have been found to have less proactive personalities.

Bateman and Crant (1993) developed a proactive personality scale to check individuals' proactive personality and it was found that individuals with proactive personalities are more likely to engage in proactive activities, which is termed proactivity in this study, like proactive information sharing.

Parker, Bindl et al. (2010) also found that individuals are not just motivated to be proactive by their personality, but their environment and social settings. Individuals also weigh the risks of being proactive before they involve themselves in proactivity.

An adapted version of Bateson's proactivity scale was used in this study to identify those with proactive personalities and they were found to engage in proactive information sharing more than those with a lower proactive personality. They are however also restricted to the constraints of the social and environmental settings in the organisation, and can only demonstrate proactivity with information when other constraints are removed. All other things being equal, having a proactive personality is one of the major drivers of proactivity.

Knowledge, Experience, and Length of Time in the Organisation

As individuals spend more time in an organisation, they build up knowledge and expertise about the organisation and their particular role. This gives them more confidence when it comes to sharing information proactively, and increases their tendency to share as well.

Constant, Kiesler et al. (1994) found in their study that sharing expertise increases the sense of self-worth, and makes individuals perceive that sharing is more rewarding. Constant, Kiesler et al. (1994) explain that individuals with higher levels of expertise are more likely not to consider that colleagues can provide the information they need, while those with less expertise believe that information provided will solve their problems. This implies that individuals with less expertise are less likely to share information proactively, since they believe that they should be dependent on others.

People who are more knowledgeable also perceive that they personally own the knowledge and they have a higher tendency to share that information (Barua, Ravindran et al. 2007). This is related to self-worth and self-efficacy, which allows the individual to share information proactively because they perceive it to be personally rewarding and a boost to their self-esteem.

The findings above are true in this study as well and individuals with more expertise are more likely to share information proactively than those with less expertise in the organisation. Another finding from this study shows that the longer individuals spend in the organisation, the more likely they are to build up that knowledge / expertise, specific to the organisation and their role, which allows them to be proactive.

Use of Technology and Resistance to Change

Technology supporting information sharing is seen by some employees as approval from management to foster information sharing, and by others as disruptive, in some cases. Those who see it as disruptive generally are resistant to using the technology and getting involved in any change it promotes.

Connelly and Kelloway (2003) in their survey, found that technology does not actually lead directly to a positive information sharing culture, but does influence it indirectly as employees see it as a sign of management support to encourage information sharing. While Barua, Ravindran et al. (2007) observed that people may be willing to share information, but the amount of effort required to share information, using technology, might be too great.

Chatman (1996) proposes that individuals may invoke self-protective behaviours and decide not to use information resources provided for fear of risking exposure of their weaknesses. Individuals may exhibit this behaviour to hide any ineptitude in an effort to appear normal or exhibit acceptable coping behaviours in the organisation.

These findings correlate with those in this study of proactive information sharing, as some employees do see technology as a means to help instil positive information sharing behaviour, others feel that it is not worth using, and this could be explained by their resistance to change, which Chatman describes as individuals invoking self-protective behaviour for fear of exposing any flaws. This could also be because of the effort required to use technology to share information.

Organisational Objectives, Organisational Policy, Organisational Structure, Size of Group, and Lack of Resources

Individuals that perceive their personal objectives as conflicting with the organisation's objectives and policies are less likely to get actively involved and share information proactively. Hierarchical structures, large teams, and a lack of resource in organisations, also reduce individuals' abilities and willingness to share information proactively.

Marshall and Bly (2004) argue that there are three main explanations why people share information in organisations;

1. To establish mutual awareness
2. To educate or raise consciousness
3. To develop rapport.

Findings from this study shows that proactive information sharers, share information proactively for the first two reason, and even though from a political point of view, individuals might share information proactively for the third reason, it was not explicitly disclosed in the evidence.

Lin (2006) found that fairness of organisational policies play a part in the employees' willingness to share information. Organisational policies does affect willingness to get involved and share information proactively in this study as well. Employees want to feel that they are treated fairly and given the freedom and resources to do their jobs properly, to enable them get involved and share information proactively.

Jarvenpaa and Staples (2001) argue that individuals' perception of ownership does not conflict with perceptions of organisational ownership. Rather they strengthen each other, and individual and organisational goals can be seen as a shared vision. However Coopride (1990) does not agree with this view as he suggests that there can be conflict between an individual's goals and the organisations goals. In this study, some individuals expressed that there was a conflict between their objective and organisational objectives.

Cress and Kimmerle (2006) also support the argument and refers to it as a social dilemma, which can exist when individuals put their short term views over the organisational long term views.

Li and Lin (2006) found that contextual factors like the size of the organisation (or group), and the structure of the organisation, may influence the quality of information shared in the organisation. Hatala and George Lutta (2009) suggest that an organisation with hierarchical structures might lead to information overload.

From the evidence in this study, a hierarchical organisational structure does stifle proactive information sharing, and the size of the group (or organisation) can affect the diffusion of information, the bigger the group or organisation, the harder it is for information shared proactively to diffuse. Finally, a lack of resources to carry out jobs or to help with

information sharing also leaves individuals feeling unsatisfied and unwilling to share information proactively.

Enthusiasm, Satisfaction / Dissatisfaction, Low Morale, Feeling of Power, and Expectation

Affective factors like Enthusiasm, Satisfaction / Dissatisfaction, Low morale, Feeling of power, and Expectation, all motivate or demotivate individuals to share information proactively.

In information behaviour, traditionally, studies have focused on individual behaviour, then there was a move to studying their social environments, and then the affective factors of individuals' information sharing behaviour became the focus of studies too. Nahl (2007) suggests that human information interaction revolves around individuals' feelings, values, emotions, and intentions. Nahl (2007) also suggests that all users of information begin with feelings of wanting to do something with the information.

According to the affective load theory, cognitive processes cannot operate independently of affective procedures. The affective procedure provides the energy, motive and regulation for carrying out the cognitive procedure. One of such cognitive procedures could be proactive information sharing and according to Nahl's theory; an affective procedure provides the energy and motive to share information proactively.

The findings in this study show a number of affective factors that either motivate proactive information sharing or demotivate individuals from sharing information proactively. Enthusiasm, satisfaction, expectation, and a feeling of power (or self-esteem); energise and motivate individuals to share information proactively, while dissatisfaction and low morale lead to unwillingness to share information proactively.

Difference in Objectives between Colleagues, Personal Agenda, and Lack of Authority

Power relations can be used to explain the proactive information sharing dynamics between individuals in an organisation. Individuals looking to promote their personal agenda are more likely to share information proactively, and others might hoard information from colleagues, depending on the situation. However, a lack of authority can make the explanation of the dynamics less straight forward, as individuals are forced to exhibit information behaviours that might not favour them.

Just like information behaviour has been studied from a cognitive, social, and affective perspective, it can also be studied from a power perspective, to explain the motivation behind proactive information sharing.

Mutshewa (2007) reinforces the suggestion that possession of information can also be a source of power, and those who have access to certain information, can use it to further their interests. Niedzwiedzka (2003) suggests also that those who want to gain power exhibit a certain type of information behaviour to ensure they get possession of, and use information they need.

These descriptions all concur with the metaphor; “information is power”, and in this study, individuals have been found to have a personal agenda, which sometimes leads them to exhibit certain information behaviours, like proactively sharing information to get their point of view across.

Professional knowledge has been known to be a source of power (Mutshewa 2007), and the information behaviour exhibited can be explained by the effect it will have on relationships between colleagues. In this study, when colleagues have differences in objectives or disagree, this generates information behaviours relative to the relational dynamics, which could be proactively sharing information to get a point across or hoarding information to deprive a colleague.

However in a hierarchical organisation like case 1 in this study, a lack of authority can sometimes skew this power relation, and individuals might exhibit information behaviours contrary to what their power needs are, mainly because they lack the authority to either

hoard information or actually proactively share it. The lack of authority can also stifle genuine willingness to share information proactively.

Having discussed the factors together in groups, emphasising their similarities, and linking them with findings from others studies in the literature, the next section explains the final models of PISB, which has been created from the results of the findings in this study.

Models of Proactive Information Sharing Behaviour

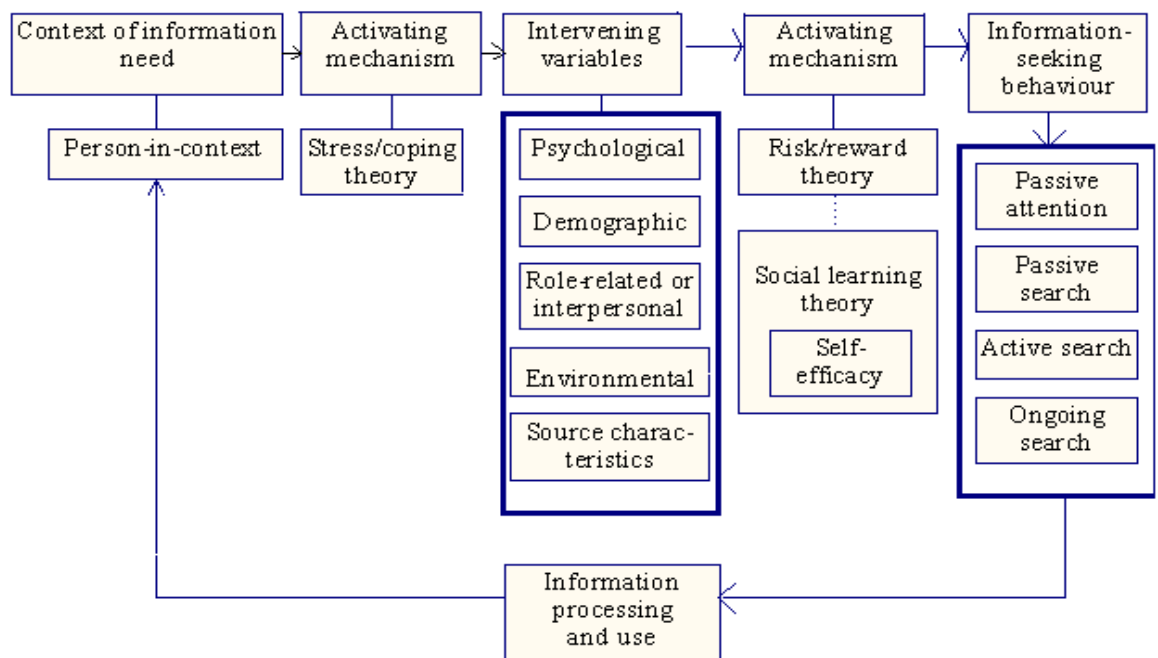


Figure 8.2 Wilson's model of 1996 - adapted from Wilson (1999)

Figure 8.2 is Wilson's (1999) model of information behaviour, which was first introduced in chapter two. The model takes an interdisciplinary view of information behaviour, covering information seeking, and information processing and use, and most importantly, depicting the process involved in displaying these behaviours. Theories from other fields and factors influencing information behaviour are also depicted as activating mechanisms, and intervening variables, respectively.

Figure 8.3 is the final model of PISB, which is an original contribution by this study. It is reminiscent of Wilson's 1996 model of information behaviour in Figure 8.2, it includes intervening variables, which in this case are environmental and social factors, that can encourage or hinder the information sharer. Figure 8.3 also includes activating mechanisms, which are theories from other fields, which offer possible explanations of why some information needs may not invoke certain information behaviours.

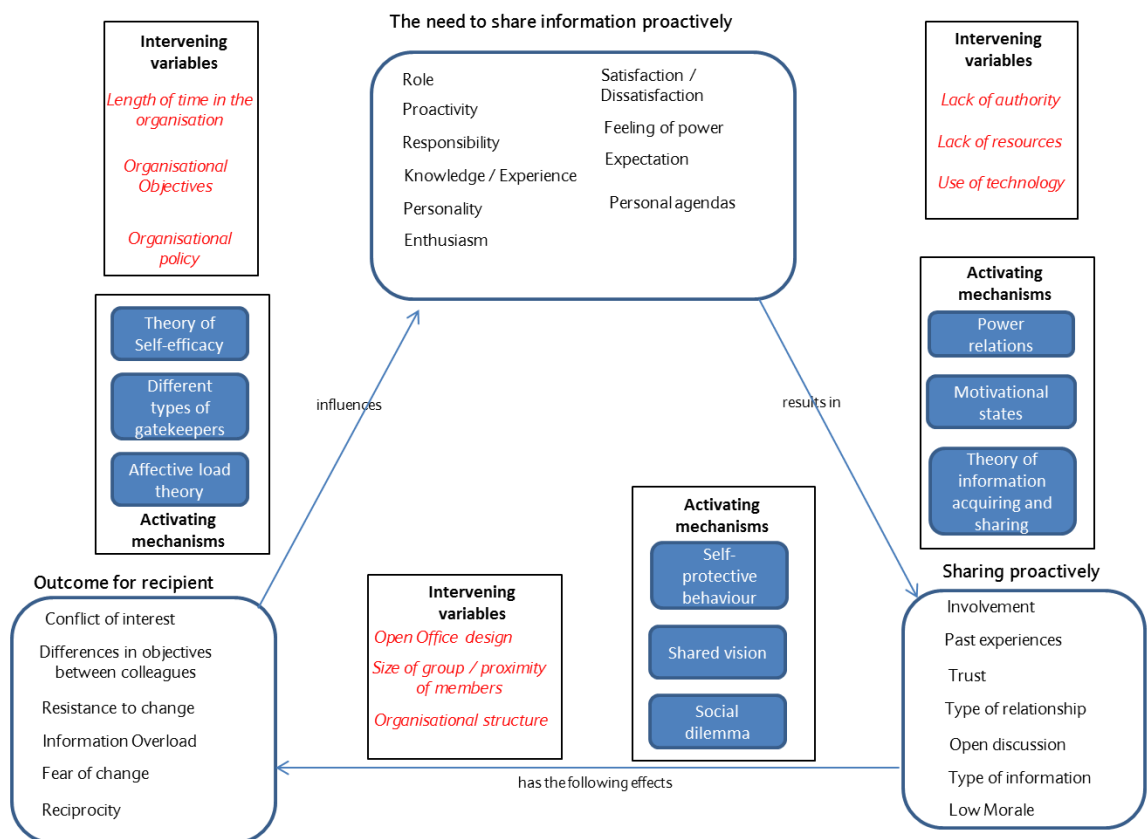


Figure 8.3 Model of Proactive Information Sharing Behaviour

Figure 8.3 also depicts the three stages of proactive information sharing behaviour, as has been identified from the findings in this study and discussion with literature, the stages are; feeling the need to share information proactively, sharing proactively, and the outcome of the proactive information sharing activity for the recipient.

Similar to Wilson's model, the final model of PISB in this study shows; the factors that influence proactive information sharing behaviour, the intervening variables, mostly organisational and social factors. The intervening variables could act as a barrier or a

motivator to individuals transitioning from one stage of proactive information sharing to another, and the activating mechanisms can explain why individuals might not make the transition from one stage of proactive information sharing to another.

The factors included in the boxes at each stage of the proactive information sharing process, signify the factors that would directly influence the individuals proactive information sharing behaviour, barring any influence from the intervening variables. The proactive information sharer goes through the first two stages, and the recipient of the information experiences the final stage, but these can still affect the information sharer, depending on the reaction of the recipient of the information.

In the first stage of proactive information sharing, the model illustrates that the theories of self-efficacy, affective load, and the concept of gatekeeping, all activate the individuals need to share information proactively. The model also highlights factors that enable, or serve as a barrier to individuals feeling the need to share information proactively. The intervening variables; length of time in the organisation, organisational policy, and organisational objectives, all either act as a barrier or motivator, for individuals to feel the need to share information proactively, depending on the organisation.

The theory of self-efficacy makes individuals feel confident, and feel the need to share information proactively. The affective load theory, demonstrates that every proactive process is a result of an emotion, and these emotions will enable the sharer to feel this need to share information proactively. Finally, the concept of gatekeeping refers to the role an individual plays within a group, which obliges them to share information proactively.

In the second stage of sharing information proactively, a theory that explains individuals' transition from, having a need to share information proactively, to actually sharing the information is Rioux's (2005) theory of information acquiring and sharing. Rioux (2005) proposes that individuals' actually hold colleagues' information needs in their subconscious, and as a result, are able to share with them any information that they perceive to be relevant, based on the colleague's information needs. By holding colleagues' information needs in the subconscious, individuals are able to filter information relevant to colleagues, and would help reduce information overload.

Power relations on the other hand can act in two ways, it can either lead individuals to share information proactively, or make them hoard information, depending on which is more favourable to the individual, based on the current power dynamic.

The different motivational states outlined by Parker, Bindl et al. (2010), in chapter two; Can do, Reason to, and Energised to, motivational states, along with power relations, and theory of information acquiring and sharing can be used to explain how and why individuals eventually decide to share, or not share, information proactively.

The intervening variables; lack of authority, lack of resources, and use of technology, which are all organisational factors in this study, will hinder or motivate individuals to go from feeling the need to share information proactively, to actually sharing information proactively.

Lastly, the third stage of the model shows the factors that are consequences of PISB, which mostly affects the recipients of the information shared, these consequences can also affect the information sharer.

The theory of self-protective behaviour is linked to a negative reaction to change, which is brought about by proactively sharing information. Shared vision is the concept of having individuals in agreement with the objectives of the information shared proactively, and that of the organisation, which leads individuals to share even more information proactively, as they are in agreement with the proposed changes and the organisational objectives.

Finally, the concept of social dilemma, this refers to the opposite of shared vision; it is when the proposed changes of the information shared proactively, or the organisational objectives, are not in-line with the individuals' objectives. This does not give the individual the drive to buy into the changes being proposed and hence reduces their willingness to be proactive, and goes back to affect the need to share information proactively.

These theories all influence the reactions of the recipient of the information. The intervening variables; open office design, organisational structure, size of group / proximity of members, all influence positively or negatively, the recipients reactions and the consequences of proactively shared information, depending on the organisation.

It is important to state that these theories that have been proposed to help individuals transition from one stage of proactive information sharing to another, are not exhaustive, but can be used as a guide to understanding the model of PISB. Also, these transitions are achieved with intervening variables acting as obstacles or motivators, depending on the organisational setting.

In conclusion, PISB is very similar to information sharing behaviour on request, even up to the factors that influence them both. However, PISB accentuates some of the effects of the factors, consequences, motivations and goals, and some factors are unique to proactive information sharing behaviour. Also the effect of information sharing on the recipient is quite different, because in information sharing on request, the user is expectant after making a request, unlike PISB where the user might be taken fully unawares, which could make his / her reactions more complex and unpredictable. In PISB there is more focus on the relationships and power relations, again because the stakes are higher due to the fact that PISB tries to enact change in some way and is more likely to encounter resistance.

Summary

This chapter has explored at the final emerging themes from the findings in this study and discussed them with the relevant theories in literature to explain if they support or contradict existing knowledge.

From the discussions, most of the findings are in line with studies from other areas, but some findings are quite unique. For example, role and responsibility are quite similar to the findings from literature, in that the role determines the responsibility, and the more responsibility, the more proactive the individual is likely to be.

While in the case of organisational objectives, and how it acts to motivate or demotivate individuals from being proactive, the literature is divided. One school of thought finds that irrespective of individuals' alignment with their organisational objectives, it will not affect their participation in the organisation, and another found that it does affect individuals.

This critical analysis of the emerging themes from this study has helped to give a better understanding of the factors generated from this research study, and positioned the findings alongside existing knowledge.

These findings were presented in a model of PISB, which was used to illustrate the findings and the relevant theories that help individuals to transition from one stage of proactive information sharing to another, and the factors that influence individuals at each stage. The model includes theories from other fields, and the contextual factors that explain, help, or hinder individuals' transition from one stage in the proactive information sharing process, to the other.

References

- Barua, A., S. Ravindran, et al. (2007). "Enabling information sharing within organizations." Information Technology and Management **8**(1): 31-45.
- Bateman, T. S. and M. J. Crant (1993). "The proactive component of organizational behavior: A measure and correlates." Journal of Organizational Behavior **14**(2): 103-118.
- Chatman, E. (1996). "The impoverished life-world of outsiders." Journal of the American Society for Information Science **47**(3): 193-206.
- Chua, A. (2003). Knowledge sharing: a game that people play. Aslib Proceedings. **55**: 117-129.
- Connelly, C. E. and E. K. Kelloway (2003). "Predictors of employees' perceptions of knowledge sharing cultures." Leadership and Organisation Development Journal **24**(5): 294-301.
- Constant, D., S. Kiesler, et al. (1994). "What's mine is ours, or is it? a study of attitudes about information sharing." information Systems Research **5**(4): 400-421.
- Coopridge, J. G. (1990). Partnership between line and IS managers. Sloan School of Management MIT.
- Cress, U. and J. Kimmerle (2006). "Information exchange with shared database as a social dilemma: The effect of metaknowledge, bonus systems, and costs." Communication Research **33**(5): 370-390.
- Cross, R., A. Parker, et al. (2001). "Knowing what we know: Supporting knowledge creation and sharing in social networks." Organisational Dynamics **30**(2): 100-120.
- Eppler, M. J. and J. Mengies (2003). "A framework for information overload research in organisation: insights from organisation science, accounting, marketing, MIS, and related disciplines." The Information Society **20**(5).
- Hatala, J.-P. and J. George Lutta (2009). "Managing information sharing within an organizational setting: A social network perspective." Performance Improvement Quarterly **21**(4): 5-33.
- Hyldegard, J. (2004). "Collaborative information behaviour - exploring Kuhlthau's Information Search Process model in a group-based educational setting." Information Processing & Management **42**: 276-298.
- Jarvenpaa, S. L. and D. S. Staples (2001). "Exploring perceptions of organisational ownership of information and expertise." Journal of Management Information Systems **18**(1): 151 - 183.
- Kahn, W. A., R. Cross, et al. (2004). "Layers of diagnosis for planned relational change in organisations." Journal of Applied Behavioural Science **39**(3): 259-280.
- Kolekofski, K. E. and A. R. Heminger (2003). "Beliefs and attitudes affecting intentions to share information in an organizational setting." Information & Management **40**(6): 521-532.
- Lastrebova, K. (2006). Managers' information overload: the impact of coping strategies on decision-making performance. Rotterdam, Erasmus University. **PhD**.
- Levin, D. Z., L. Cross, et al. (2002). "Trust and Knowledge Sharing: A critical combination." IBM Institute for Knowledge-Based organisation.
- Li, S. and B. Lin (2006). "Assessing information sharing and information quality in supply chain management." Decision support systems **42**(3): 1641-1656.

- Lin, C. P. (2006). "To share or not to share: modeling tacit knowledge sharing, its mediators and antecedents." Journal of Business Ethics **70**: 411-428.
- Marshall, C. C. and S. Bly (2004). Sharing encountered information: digital libraries get a social life. 4th ACM/IEEE-CS joint conference on Digital libraries.
- Mutshewa, A. (2007) A theoretical exploration of information behaviour: a power perspective. Aslib Proceedings: New Information Perspectives **59**, 249-263
- Nahl, D. (2007). "Social–biological information technology: An integrated conceptual framework." Journal of the American Society for Information Science and Technology **58**(13): 2021-2046.
- Niedzwiedzka, B. (2003) Proposed general Model of information behaviour. Information Research **9**,
- Parker, S. K., U. K. Bindl, et al. (2010) Making Things Happen: A Model of Proactive Motivation. Journal of Management **36**, 827-856
- Rioux, K. (2005). Information acquiring and sharing. Theories of information behaviour. K. E. Fisher, S. Erdelez and L. McKechnie. USA, Assist Monograph.
- Accenture (2007). Managers say the majority of information obtained for their work is useless, Accenture survey finds. DOI: http://newsroom.accenture.com/article_display.cfm?article_id=4484
- Willen, A. and M. Buelens (2007). "Knowledge sharing in public sector organisations: The effect of organisational characteristics on interdepartmental knowledge sharing." Journal of Public Administration Research and Theory **17**(4): 581-606.
- Wilson, T. D. (2001). "Information overload: Implications for healthcare services." Health Informatics Journal **7**(2): 112-117.

9 Evaluation and Conclusion

Introduction

This chapter reflects on the initial aims and objectives of this study, and critically evaluates if they have been met through the course of the research study. The chapter also reflects on the literature review and theoretical framework to highlight the issues raised in the literature, which the study has addressed by using interdisciplinary methods.

The implications for organisations raised by the findings from this study are explained, and the limitations of the study are also discussed. Recommendations for future research are outlined, and finally the main findings from the study are assessed in relation to answering the research question.

Research Objectives

1. Carry out a critical review of the underpinning theories and models relating to information sharing
2. Compose and tailor techniques to identify those that share information proactively in organisations
3. Identify factors that influence the proactive information sharing individuals
4. Critically review the findings
5. Evaluate the methods used and make recommendations on how to cultivate information sharing behaviour

The first objective was addressed in the theoretical framework and literature review in chapters two, three, and four, and in the next section of this chapter. The second objective was addressed in chapter four, the methodology, methods, and techniques used to identify proactive information sharers are documented and explained in the methodology section in this chapter. The third and fourth objectives were addressed in chapters five, six, seven, and eight, and in the findings section of this chapter, to help explain and critically review the findings in this study. Finally the evaluation and limitations of the methods used in the study, the implications for organisations trying to cultivate proactive information sharing

behaviour, and the recommendations for further research are explained in the corresponding sections in this chapter.

Theoretical Framework and Literature Review

The theoretical framework which served as a lens, through which this study was viewed and conducted, consists of theories of appreciative inquiry, autopoiesis, social network analysis, and sense making. These theories helped to understand the macro and micro level factors that influence proactive information sharing. These theories have influenced the methodology in this study and inevitably influenced the findings.

Autopoiesis is defined as a network of processes which continuously generate the processes that produced them, through interaction (Maturana and Varela 1987). The final model of proactive information sharing behavior (PISB) that was developed from the findings in this study, was influenced by this concept of continuous generation of processes.

Social network theory (SNT) suggests that patterns of relationships give rise to specific behaviours. SNT informed the findings in this study and was used to test various hypotheses during the course of the study. For example, to test the hypothesis that individuals with a proactive personality share information more proactively, and colleagues who share informal relationships are more likely to share information proactively.

Appreciative inquiry promotes focusing on the positives (Kowalski 2008), and enabled this study to focus on those individuals or instances where information sharing is good and proactive, and in the process of studying the positives, some factors that hinder proactive information sharing behaviour were also uncovered. Focusing on the negatives might not have generated as many positive factors.

Sense making and the concept of gap bridging is central to this study. Sense making informed the methodology and methods used for data collection, and was also used in elaborating and explaining the findings. The need to share information proactively can be

viewed as a gap, which is bridged when the individual eventually shares information proactively.

Having related the theoretical framework to the findings from this study, the next section reflects on the issues raised in the literature review and how they have been addressed in the study.

Literature Review

There has been an interdisciplinary interest in the study of information behavior (IB), and there has also been the use of interdisciplinary methods and theories in studying IB (Wilson 1997). This was continued in this study, by using interdisciplinary methods, an interdisciplinary theoretical framework, and interdisciplinary theories in discussing and evaluating on the findings.

From the models of information behavior (IB) covered in the literature review, Wilson's (1999) model informed the area of focus (information sharing) for this study, the interdisciplinary methods used, and the final model of proactive information sharing behavior (PISB) generated. Devin's sense making has already been covered in the theoretical framework, and Kuhlthau's (1993) search process which relates to affective factors that influence the information search process, was the reference for exploring the affective factors which influence the proactive information sharing process.

There were debates in the literature about the focus of studies in IB, debates on the aspect of IB, the type of IB, and what factors influence these aspects of IB (Niedzwiedzka 2003; Vakkari 2008). This study used these debates to identify gaps in the IB literature, and focused on information use and sharing aspects of information behavior, PISB as the type of IB, and focused on social factors, but also on organisational and cognitive factors.

The literature also stressed that finding the right mix of both contextual and individual variables would lead to a better understanding of IB (Vakkari 2008), and this study has sought to do just that, to address the gaps identified by literature.

In the proactive behaviour literature, proactive behaviour is seen as a goal driven behaviour, and it is argued that using a goal oriented approach to study proactive behaviour could help understand some of its complexities (Parker, Bindl et al. 2010). Goal generation is similar to gap bridging, as both involve a goal or gap which needs to be addressed and the study adopted this approach to give a better understanding of PISB.

Methodology

Although a paradigm is a combination of the ontological and epistemological stance of a research study, it should not be the only thing that drives research (Wilson 2003), as there are other factors that drive research, like research objectives, nature of the research, and time and resources (Wilson 2003).

This study used a constructivist paradigm, and used both quantitative and qualitative methods in understanding the phenomena under study. Guba and Lincoln (1988) point out that, at an individual level, it is possible to use both qualitative and quantitative tools and techniques in a constructivist inquiry.

The quantitative part of the study was used to gain an understanding of the macro level factors which influence information sharing in organisations, using network analysis of the information sharing network in the organisation. The qualitative part of the study was used to understand the micro level factors which influence information sharing in organisations, using semi-structured questionnaires with individuals. The interpretation of data was done from a constructivist perspective, and networks generated using social network analysis were viewed as a co-construction of those involved in the network, and was used to help analyse their individual constructions.

The analysis of the social network data led to the development of categories used for collecting qualitative data. However, after analysis of the qualitative data, there was data consolidation, where both sets of data were jointly reviewed as narratives, to construct a clearer picture of the author's views on each organisation.

The qualitative data was analysed using grounded theory coding techniques (Strauss and Corbin 2008). Though some initial factors were identified from the first phase of the study, during observation, before the semi structured interviews. After collecting more data during the second phase of the study, the analysis showed that some of the initial factors from the first phase did not directly influence information sharing behaviour. Some influenced it indirectly, and others, not at all. The methodology used in this study is further evaluated below.

- On an ontological level, having a constructivist view was useful in getting a holistic picture of proactive information sharing behaviour, because every participant's view was taken into account, and the findings are reflective of the experiences of the individuals and the researcher at that point in time, in that particular environment.
- Using the mixed method approach has proven to be insightful, considering the breadth and depth of the findings that have been generated. It has helped to understand individuals' information sharing behaviour in their social and environmental context, by first identifying those that are central to proactive information sharing in the organisation, through quantitative methods, and then generating a deeper understanding of the factors that influence PISB through qualitative methods.
- The constructivist stance of the study also allowed the flexibility to follow an emergent approach to collecting data which led to a deeper understanding of PISB.
- The author was embedded in case 1, and was actually working with the participants every day. Keeping a diary and observing people was key in understanding the initial problem statement and in reviewing the related literature.
- When it came to actual data collection, a purposive sample was used, to ensure that the teams used as part of the study had rich cases of information sharing between colleagues.

- The validity of the study was handled by proving the credibility, transferability, dependability, and confirmability of the study. For credibility, the study gave a very vivid description of, not just the organisations, but of the participants and the researcher, and this was further supported by the combination of research methods. In terms of dependability, maintaining a record of decisions made during the analysis of the data, data storage, and implementation of procedures, gave an audit trail. For transferability, the two organisations used in this study, though are fundamentally different, have the common factor of being a group of people trying to achieve a common goal, and hence already demonstrates a level of transferability of findings in both organisations. A rich contextual description is given of each case in chapter five, to enable the reader to transfer the findings to similar organisations. Finally, confirmability was handled by ensuring that the findings from this study can be linked back to the participant responses in the study. The author's background and worldview were also described, and the coding done during data analysis was elaborate, to enable the reader to identify any bias, and thereby improve confirmability.
- The research also took into account the subjective nature of the study, as the world view of the researcher might have played a part in data collection and interpreting findings. Finally, the ethical issues that might have been raised during the field study were taken into account and dealt with appropriately.

Findings and Contribution to Knowledge

Original contribution to knowledge:

The development of an understanding of factors which influence proactive information sharing behaviour in organisations; understanding of the relationship between these factors; and the development of tools to identify proactive information sharing behaviour.

There are three aspects to the original contribution to knowledge made by this study; the first has been dealt with by the key findings in this study, by identifying and understanding the factors that influence proactive information sharing behaviour.

The second, understanding the relationship between the different factors which influence proactive information behaviour. This was achieved by carrying out a cross case analysis, by discussing the findings with similar or conflicting views in literature, and by using a multidisciplinary approach.

Finally, the third aspect of the original contribution to knowledge relates to the development of tools to identify proactive information sharing behaviour. In carrying out the study, several questionnaires, techniques, and tools were used, which have been detailed in the study in chapter four, and can be reused to identify proactive information sharing behaviour in future studies. Some of the tools include; the questionnaire used to collect the data to generate the social networks of proactive information sharing, and the Rickter scale that was used to collect qualitative data from the individuals.

The main contribution of this study to the body of knowledge is the model of proactive information behaviour, which was introduced in chapter 8, and is depicted again below.

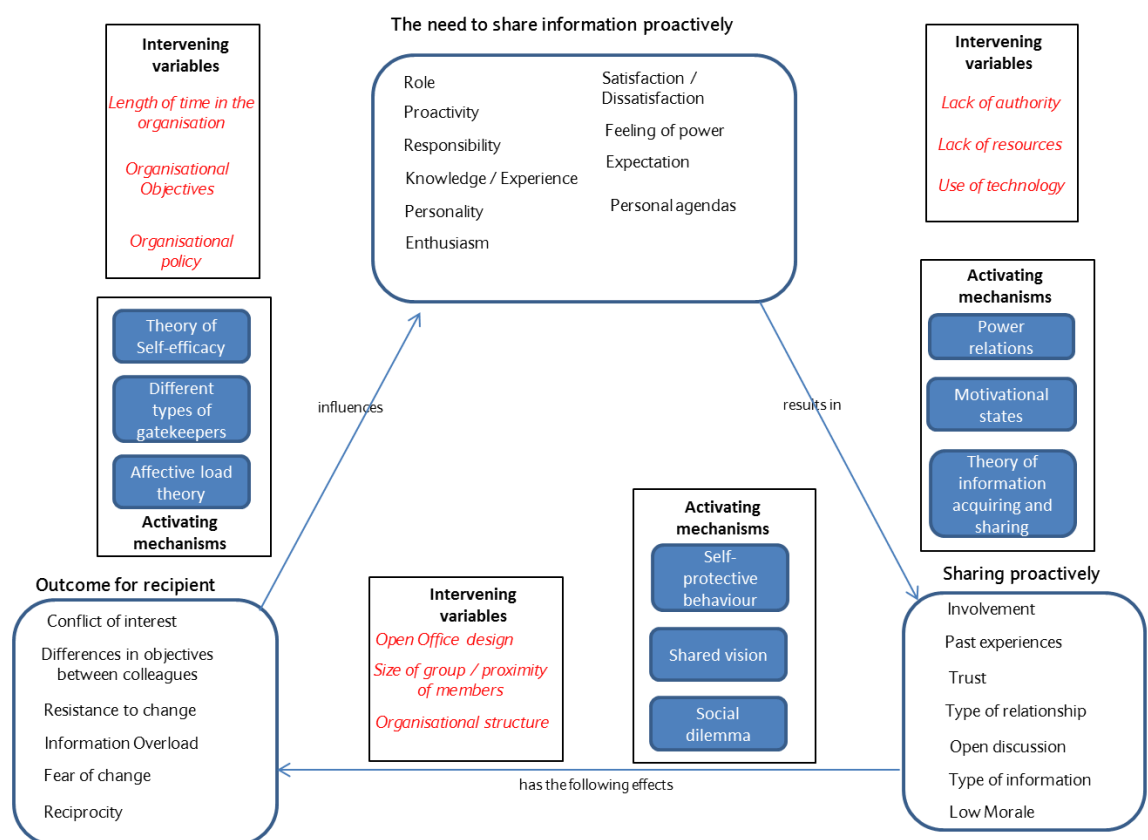


Figure 9.1 Model of Proactive Information Sharing Behavior

Parker, Bindl et al. (2010) suggest studying proactive behavior as goal generation, in order to understand the process, motivation, and factors that influence proactive behaviour. This is very similar in concept to Dervin's (1983) sense making, which proposes viewing a concept as a gap which needs to be bridged, and this helps to also understand the factors that influence the concept in question.

By applying the concepts of goal generation and sense making to describe the findings in this study, the findings were split into three stages; the need to share information proactively, sharing proactively, and the outcome for the recipients of the information. These three stages are described briefly below, along with the activating mechanisms, which are theories from literature that support transition from one stage of proactive information sharing to another.

The factors included in the boxes at each stage of the proactive information sharing process, directly influence the individuals' proactive information sharing behaviour, barring any influence from the intervening variables.

The Need to Share Information Proactively

Individuals feel the need to share information proactively with colleagues for many different reasons, and from the findings in this study, the affective, cognitive and organisational factors make individuals feel the need to share information proactively.

It takes extra effort to share information proactively, and there is probably more potential for a backlash with proactive information sharing. This means that individuals mostly share information proactively for personal reasons, or for reasons beyond their control, like organisational policy, not necessarily for the benefit of their colleagues.

The theories that explain the activation of that need to share information proactively are the theories of; self-efficacy (Kolekofski and Heminger 2003), affective load (Nahl 2007), and gatekeepers (Hyldegard 2004), and they all point to the individual's motivations or those created by the organisation, such as job roles.

Sharing Proactively

Even when individuals feel the need to share information proactively, they sometimes do not go ahead with it, and there are certain factors that might hinder the actual sharing or act as incentives for the individuals. Social factors feature heavily at this stage, as the relationship between the sharer and the potential recipients can be a barrier or an incentive to go ahead and share information proactively. Also the organisational factors like structure, office design, and team size, can make it easier to share information proactively, and also influence the effect the information has on the recipient.

The theories that encourage transition from having the need to share information or being in a position to share, and actually sharing information proactively includes; power relations (Mutsheva 2007), motivational states (Parker, Bindl et al. 2010), information acquiring and sharing (Rioux 2005).

Outcome for Recipient of the Information

This stage represents the outcome for the recipient of the information, their reaction and any other consequences of proactive information sharing. These reactions include cognitive reactions of the recipient, and the social relationships between the sharer and the recipient. The information shared can also lead to a conflict of interest between the recipient's personal objectives and the objectives of the sharer.

Some of the theories that explain the outcome or reaction of the recipient to information shared proactively, are; self-protective behaviours (Chatman 1996), shared vision (Jarvenpaa and Staples 2001), or social dilemma (Cress and Kimmerle 2006).

Limitations of the Research

In carrying out this study, there were some limitations that had to be dealt with, mitigated, or accepted during the study. The samples for data collection were purposive, and did not

include a huge number of participants for each case. The two organisations used in the study were located in the same geographic area, though there were three cases in all, because two teams from the first organisation were used as separate cases. There were limitations to the type of observations carried out, due to organisational restrictions and ethics, also the data was collected within a short time frame, so findings could be influenced by other unknown factors at that point in time.

Sample

The purposive sampling, which required the use of groups / teams that are rich in information sharing instances, meant there was a restriction on the teams that could be used, and also the number of people in those teams.

The social network analysis also used a small sample for quantitative analysis, but taking into account that social network analysis uses a relational statistical model, the small number of samples are essentially multiplied exponentially, which increases the number of actual cases.

Number of Cases and Location

The number of cases used in the study was limited to two organisations, because of the time required to collect data. However, three cases were actually used for this study, because two teams were used from the first organisation. Both organisations were in the north east of England, which might not have given enough diversity in organisational culture to allow for more validity and diversity in the findings.

Observation

Observations were not carried out in the way the author would have preferred due to restrictions in the organisation and potential ethical issues. Most of the observations were recorded at the end of the day, retrospectively as a diary, as opposed to having different topics and recording observations against them as the author came across them. This might have limited the amount of data captured during the observations, and having to write

down observations retrospectively might have led to the author not capturing the observations as vividly as could have been possible.

Also no observation took place in the second organisation, this was partly strategic, and partly due to time and resource constraints. The second organisation was to help validate or extend findings from the first case, and did not require extensive data collection, but also because data collection in the first organisation had taken a lot of time; it was not feasible to spend as much time in the second organisation. Most of the contextual information from the second organisation was collected from speaking to the lead member of the organisation before the interviews, and during the interviews with other members.

Time Constraint

The data was only collected at a certain point in time, which meant that the findings could be tied to a temporary factor that could have influenced the organisation, or the teams and participants, at that point in time. Ideally the data should have been collected over time, to help with more validity and comparability between the two points in time to help better understand the factors that influence proactive information sharing behaviour and also how these factors change, or are affected over time.

Implications for Organisations

It has been demonstrated in literature that having proactive employees in an organisation improves the organisation, in terms of output and efficiency. Some studies showed that proactive people are better at; career management (Ashford and Black 1996), socialising (Morrison 1993), and proactive presidents were regarded by historians to be effective (Deluga 1998). This means that organisations should look to encourage and foster proactive information sharing behaviour between colleagues.

From the findings in this study, there is higher risk and potentially higher consequences with sharing information proactively, so it makes it more difficult to motivate employees to exhibit this information behaviour. The findings show that the need to share information

proactively comes mostly from affective factors and organisational factors. So organisations would have to focus on creating policies that do not restrict individuals, and gives them the resources they require to be as proactive as possible.

To help connect with the employees on a personal level, to allow the affective factors to motivate them, the organisation has to ensure that it sells the vision of the organisation to the employees, to ensure that they align the organisational objectives with their personal objectives. This reduces social dilemmas, and results in a shared vision for the employees, which will motivate them to bridge the 'gap' that is proactive information sharing.

Also organisations need to foster the right environment to allow for proactive information sharing. These include open office designs, smaller team sizes, and flatter organisational structures, to help foster an information sharing culture. Also introducing technologies that will help make it easier for employees to share information would make a difference, even though from the research findings, technology does not always foster proactive information sharing behaviour. Employees perceive technology as an endorsement from senior management to exhibit proactive behaviour.

Finally, organisations should ensure that there are no negative consequences for employees who are trying to enact change, so that more employees are willing to give it a go, and not put off being proactive by the potential consequences.

Recommendations for Further Research

This study has identified the factors that influence proactive information sharing behaviour in organisations, through the constructions of the individual participants and the author's observations, analysis and findings. The findings have led to the development of a model of proactive information sharing behaviour to explain proactive information sharing behaviour.

Future research studies are needed to test the validity of the generated model in other organisational settings and contexts, to see how appropriate, or relevant, the model is in different contexts. These would help understand proactive information behaviour better

and would lead to either, further validating the model, or understanding the different contexts where it might not apply.

Generally, proactive information sharing behaviour has not been researched much, so any kind of study in this field would be welcome, to create more debate which would lead to further studies and understanding of proactive information sharing behaviour.

Courtright and Cronin (2007) point out that a longitudinal and comparative study can help add depth to studies that have used multiple methods and an ethnographic approach. Future studies that can collect data longitudinally and understand how proactive information sharing behaviour changes over time, will no doubt help add depth and breadth to the body of knowledge.

Finally, there is the need to understand better, the difference between information sharing on request and proactive information sharing. Though they are similar in many ways, this study has shown that proactive information sharing, generally has a higher risk and accentuates the effects of certain factors. A study to further analyse the differences and similarities between the different types of information sharing will provide that insight.

Testing Model of Proactive Information Sharing Behaviour

There is the need for a purely quantitative study to help test some of the factors that have been found in this study to influence proactive information sharing behaviour. Further quantitative studies would also help validate the factors from the model of proactive information behaviour in Figure 9.1 and show which factors influence proactive information behaviour more than others.

The final model of PISB in Figure 9.1 can also be tested by replicating this study in similar or different organisations, to understand how different or similar the findings will be, which will help to test the validity of the model. The different phases of PISB in Figure 9.1 can also be tested independently, by carrying out smaller studies focused on each phase to help test the findings.

Final Conclusions

Introduction

This study is about proactive information behaviour and values. The study came about as a result of a problem in a manufacturing company. The manager of the IT department wanted to develop a solution to what he called “poor information flow” in the organisation, and he was of the opinion that people rarely shared information that would be useful to others in doing their jobs. In trying to understand the actual situation, observations and reflections helped gain a deeper understanding, which led to the conception of a research question.

The literature review posed two ways of tackling the problem; the study could either focus on uncovering the problems causing such behaviour, or explore how to cultivate such behaviour, more of a positive psychology approach. The author decided to take the approach of positive psychology, because it is anticipated to be a more uplifting experience for participants, as opposed to focusing on problems (Hanson Smart and Mann 2003). A part of positive psychology that was reviewed briefly, and helped focus the study, is appreciative inquiry.

This research approach meant identifying those that exhibit such behaviors and those who do not, understanding what influences them, and how to cultivate a positive information sharing behaviour. From the literature two types of information sharing are identified; proactive or upon request. It was clear that the kind of information sharing that they lacked in this organisation was the proactive kind, because they did not necessarily go out of their way to help each other. This led to the development of the research question for the research as seen below.

Research question:

What are the factors that influence proactive information sharing in organisations?

Literature Review

There are several models and theories of information behaviour, one of the most notable one is Wilson's (1994) model, which illustrates the different aspects of information behaviour, and also highlights where there has been a scarcity of research. Wilson's model highlights the scarcity of research in information sharing behaviour, which this study is focused on.

Previous studies in information sharing behaviour have focused on understanding the individual, but more recently there has been a shift towards understanding the individual's environment and social factors that affect their information sharing behaviour.

Proactive behaviour in itself is a behavioural construct that has been studied in organisational psychology and management in the past two decades and as in any relatively new discourse, opinions are divided on certain aspects, not least, on what behaviour exactly should be termed proactive behaviour.

Proactive behaviour is a complex concept, which is dependent on several factors, and leads to various outcomes as well, and researchers like Crant (2000) have called for research methods that can address such complexity by exploring the individual's perception and behaviour, and contextual factors that are antecedents and consequences of proactive behavior.

Methodology

A constructivist approach was followed in this study, as a constructivist inquiry seeks to understand the entire context of research, both at the macro and micro level. To understand this macro and micro level activities in context, the author took Wilson's (1994) advice and took a multidisciplinary approach to develop the theoretical base. The theories were drawn from the fields of; complexity and systems thinking, information behaviour, positive psychology, and sociology.

The theoretical framework used in this study includes the theory of autopoiesis, social network theory, sense making theory and appreciative inquiry. These theories served as a

lens through which the organisation was viewed and directed the study in terms of type of data collected and the subsequent analysis of the data.

The study took a mixed methods approach, using both quantitative and qualitative data, with a constructivist paradigm. The quantitative part of the study was used to get an understanding of the macro level of information sharing in organisations, using network analysis of the information sharing network in the organisation. The qualitative part of the study was used to understand the micro level of information sharing in organisations, using semi-structured questionnaires with individuals.

This study was an exploratory study, which used not only a mixed methods approach, but also a mixed strategy to achieve the research objectives, following the advice of Yin (2003) for conducting exploratory research. The study employs the use of an ethnographic research strategy within one of the organisations to create the initial objectives, and uses a second organisation for expansion and validation of findings. The study uses two different organisations, one in the private sector and another in the third sector.

Major Findings

The major findings from the study have demonstrated that proactive information sharing behaviour can be viewed as goal generation or gap bridging, and that there are three stages that determine proactive information sharing behaviour; feeling the need to share information, sharing proactively, and outcome for the recipient. At each stage, there are several factors that influence the individual positively or negatively, which has an influence on whether or not proactive information sharing behaviour is exhibited.

These factors have been grouped into individual / cognitive factors, social factors, and environmental factors. Affective factors were also taken into consideration, and they were included with the individual / cognitive factors.

To answer the research question:

What are the factors that influence proactive information sharing in organisations?

The factors that have been identified to influence proactive information sharing in organisations are listed below, and have been explained in chapter eight.

- Role, responsibility, and involvement
- Reciprocity and Trust (Past experiences, type of relationship)
- Open office design, open conversations, and information overload
- Proactivity and personality
- Knowledge, experience, and length of time in the organisation
- Use of technology and resistance to change
- Organisational objectives, organisational policy organisational structure, size of group, and lack of resources
- Enthusiasm, satisfaction / dissatisfaction, low morale, feeling of power, and expectation
- Difference in objectives between colleagues, personal agenda, and lack of authority

This study has contributed to the development of an understanding of factors which influence proactive information sharing behaviour in organisations; an understanding of the relationship between these factors; and the development of tools to identify proactive information sharing behaviour.

Events and Conferences Attended

Most of the events and training attended can be found in the training needs analysis form which is attached as a separate document, but a summary of the most relevant events and conferences are outlined in table 9.1 below.

Table 9.1 Events and conferences attended

Events	Place	Date	Presented
Vitae poster competition NE hub	Leeds	March 2009	Poster
UKAIS regional workshop	Leicester	March 2009	Paper
UKSS conference	Oxford	September 2009	N/A
UKAIS PhD Consortium	Oxford	March 2010	Gave a talk
UKSS conference	Oxford	September 2010	Paper
UKAIS Conference	Oxford	April 2011	Paper

Papers

The paper from the UKAIS workshop in Leicester was accepted to go into the special issue of the international journal of technology and human interaction (IJTHI), which was published in April 2011 (Mosindi and Sice, 2011a). I also wrote a book chapter on complexity and communication in organisations as part of a book in the continued communications research headed by Elizabeth Lomas who was a research student in the school at the time of writing the document. Due to extenuating circumstances, the continued communications project was delayed and the arrangements with regards to the book have not been communicated.

The paper from the UKAIS conference in 2011 has been published as part of the conference proceedings, on the Association of Information Systems (AIS) electronic library (Mosindi and Sice, 2011b).

Summary

This evaluation and conclusion chapter has recapped the research aims and objectives, the theoretical framework, methodology, and major findings in the study. The accomplishment of each research objective was explained, and the sections of the thesis where each objective was addressed were highlighted.

The methodology used to carry out the study was also evaluated. On an ontological level, having a constructivist view was useful in creating a holistic picture of proactive information sharing behaviour, and mixed methods of data collection proved to be useful in generating insightful findings. Using an emergent approach allowed for enough flexibility to use the right techniques to elicit rich data, and the author's ethnographic experience in case one helped gather in-depth contextual information about the organisation.

The limitations of the study were also discussed, like the sample used for data collection being purposive, and the number and location of cases. The time constraint which meant that data was collected only once, did not allow for the data to be analysed for potential changes over time.

The implications of this study for organisations were also discussed. The need for organisations to focus on creating policies that do not restrict individuals, and give them the resources they require to be as proactive as possible, was highlighted. As was the need for organisations to ensure that employees are aligned with the vision of the organisation, to ensure that they accept the organisational objectives as their personal objectives. Organisations also need to foster the right environment to allow for proactive information sharing, and ensure that there are no negative consequences for employees who are trying to create change, so that more employees are willing to be proactive.

Finally, recommendations for future research were highlighted, to complement this research study and increase the breadth and depth of this research area. There is the need for further research to help test the validity of the developed model of PISB, quantitative studies to test some of the factors that have been found in this study, and longitudinal and comparative studies, to evaluate the impact of time on proactive information sharing behaviour.

References

- Ashford, S. J. and J. S. Black (1996). "Proactivity During Organizational Entry: The Role of Desire for Control." Journal of Applied Psychology **81**(2): 199-214.
- Chatman, E. (1996). "The impoverished life-world of outsiders." Journal of the American Society for Information Science **47**(3): 193-206.
- Courtright, C. and B. Cronin (2007). Context in information behavior research. Annual Review of Information Science and Technology, Information Today, Inc. **41**: 273-306.
- Crant, J. M. (2000). "Proactive behavior in organizations." Journal of Management **26**(3): 435-462.
- Cress, U. and J. Kimmerle (2006). "Information exchange with shared database as a social dilemma: The effect of metaknowledge, bonus systems, and costs." Communication Research **33**(5): 370-390.
- Deluga, R. J. (1998). "American presidential proactivity, charismatic leadership, and rated performance." The Leadership Quarterly **9**(3): 265-291.
- Dervin, B. (1983). An overview of sense-making research: concepts, methods, and results to date. International Communication Association annual meeting.
- Guba, E. G. and Y. S. Lincoln (1988). Do inquiry paradigms imply inquiry methodologies? Qualitative approaches to evaluation in education: the silent scientific revolution. D. M. Fetterman. London, Praeger: 89-115.
- Hanson Smart, D. and M. Mann (2003). "Incorporating appreciative inquiry methods to evaluate a youth development program." New Directions for Evaluation **2003**(100): 63-74.
- Hyldegard, J. (2004). "Collaborative information behaviour - exploring Kuhlthau's Information Search Process model in a group-based educational setting." Information Processing & Management **42**: 276-298.
- Jarvenpaa, S. L. and D. S. Staples (2001). "Exploring perceptions of organisational ownership of information and expertise." Journal of Management Information Systems **18**(1): 151 - 183.
- Kolekofski, K. E. and A. R. Heminger (2003). "Beliefs and attitudes affecting intentions to share information in an organizational setting." Information & Management **40**(6): 521-532.
- Kowalski, K. (2008). "Appreciative Inquiry." The Journal of Continuing Education in Nursing **39**(3).
- Kuhlthau, C. C. (1993). Seeking Meaning. Greenwich, Connecticut, Ablex publishing co.
- Maturana, H. and F. Varela (1987). The Tree of Knowledge: The Biological Roots of Human Understanding. Boston, MA, Shambhala.
- Morrison, E. W. (1993). "Longitudinal Study of the Effects of Information Seeking on Newcomer Socialization." Journal of Applied Psychology **78**(2): 173-183.

Mosindi, O., Sice, P., (2011a) 'An exploratory theoretical framework for understanding information behaviour', special issue of the journal of technology and human interaction, April 2011. Available at <http://dx.doi.org/10.4018/jthi.2011040101>

Mosindi, O., Sice, P., (2011b) 'Social network analysis and information systems in organisations: Highlighting the need to understand information sharing behaviour', UK Academy for Information Systems (UKAIS). St Catherine's College, Oxford 11 April 2011. Available at <http://aisel.aisnet.org/ukais2011/34/>

Mutshewa, A. (2007) A theoretical exploration of information behaviour: a power perspective. Aslib Proceedings: New Information Perspectives **59**, 249-263

Nahl, D. (2007). "Social-biological information technology: An integrated conceptual framework." Journal of the American Society for Information Science and Technology **58**(13): 2021-2046.

Niedzwiedzka, B. (2003) Proposed general Model of information behaviour. Information Research **9**,

Parker, S. K., U. K. Bindl, et al. (2010) Making Things Happen: A Model of Proactive Motivation. Journal of Management **36**, 827-856

Rioux, K. (2005). Information acquiring and sharing. Theories of information behaviour. K. E. Fisher, S. Erdelez and L. McKechnie. USA, Assist Monograph.

Strauss, A. and J. Corbin (2008). Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory. Los Angeles, California, Sage Publications.

Vakkari, P. (2008) Trends and approaches in information behaviour research. Information Research **13**,

Wilson, T. D. (1994) Information needs and uses: fifty years of progress? . Information Research: an international electronic journal

Wilson, T. D. (1994). Information needs and uses: fifty years of progress? Fifty years of information progress: a Journal of Documentation review. E. B.C. Vickery. London, Aslib: 15- 51.

Wilson, T. D. (1997). "Information behaviour: An interdisciplinary perspective." Information Processing & Management **33**(4): 551.

Presents a review of the literature of information behavior as it is studied in a variety of disciplines other than information science. Areas of research interest to information science; Proposed model of information behavior.

Wilson, T. D. (1999) Models in information behaviour research. Journal of Documentation **55**, 249 - 270

Wilson, T. D. (2003) Philosophical foundations and research relevance: issues for information research
Journal of Information Science **29**, 445-452

Yin, R. K. (2003). Case study research: Design and Methods. Thousand Oaks California, Sage Publications.

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APPENDIX A

Conference Paper

Mosindi, O., Sice, P., (2011) 'Social network analysis and information systems in organisations: Highlighting the need to understand information sharing behaviour', UK Academy for Information Systems (UKAIS). St Catherine's College, Oxford 11 April 2011. Available at <http://aisel.aisnet.org/ukais2011/34/>

SOCIAL NETWORK ANALYSIS AND INFORMATION SYSTEMS IN ORGANISATIONS: HIGHLIGHTING THE NEED TO UNDERSTAND HUMAN INFORMATION SHARING BEHAVIOUR

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Abstract

The purpose of this paper is to draw attention to the lack of importance given to understanding the users' behaviour and context when it comes to developing IS in organisations. To also point out the value of social network analysis (SNA) in the study of organisations and IS in general and give a critical review on SNA as a method.

The significance of SNA was demonstrated with a case study which shows in a little detail how it can help in understanding user behaviour and organisational context.

This is a paper that is based mainly on information systems (IS) in organisations, so it does not make any claims outside of this context, and while there are alternatives to SNA in understanding organisations, the paper focuses on SNA because of the insight it gives on the social environment of the organisation. The paper helps provide a general understanding of SNA as a tool in studying user behaviour in organisations with a view to IS development and evaluation, and also makes an effort to link and show the importance of the study of user behaviour to developing IS that is more suited to the user.

Keywords: Social network, Information system, Information behaviour, Organisational research

1. Introduction

This paper first explores research on information in organisations, the importance of understanding the members of the organisation, and what role it plays in IS development. Then social network analysis (SNA) as a method to help understand these behaviour is explained using a case study, and its use in evaluation of IS is also highlighted, along with its limitation. Finally a discussion on its use in IS and the discourse on understanding users before the development of IS.

1.2. Organisations, information and systems

Organisations have been researched in many fields for the sole purpose of trying to understand its complexities and to help gain a competitive advantage in its ever changing environment and organisations have also been conceptualized as political systems, machines etc. for the same purpose (Morgan 2006). It is well researched that information plays a big role in an organisation's success and in a study carried out in many organisations, by Marchand et al (2001) they identified three information capabilities that organisations need to possess to increase productivity namely: Information management, information technology and information behaviour and values.

In the information age as it has come to be known, the importance of information in our everyday lives and organisations cannot be overemphasised. Perhaps a quote from Davenport (1997) would do a bit of justice to this view:

The point is that the economic value from generating, using and selling information is growing significantly faster than value added by producing traditional goods and services"

Stan Davis 20/20 vision

In fact there are organisations that exist just to share and or sell information. Organisations of this nature are viable, and most of them have become huge corporations; take social networking giant Facebook for instance.

Traditional organisations in other sectors have had to improve information flow within their organisation and from outside to try to maintain a competitive edge. So the need for organisations to manage information has increased, and this has been an issue of study, by both researchers and practitioners alike.

The importance of information cannot be overstated, and Hatala and George Lutta (2009) points out again that organisations that are able to share knowledge effectively among members will improve their competitive advantage, but this is seldom rooted into organisational principles and norms (Bock, Zmud et al. 2005). To this end an organisation's information sharing capability is fully dependent on the individual information sharing behaviour of its members and Baird and Henderson (2001) also point out that developing positive information sharing behaviour for employees would improve organisational productivity.

It is perhaps not a surprise that top management and information technology and systems are purported to be the facilitators of effective information sharing in organisations (Hatala and George Lutta 2009).

Another factor that information sharing is dependent on in an organisation is relationships and social interactions in the organisation. Social interactions can enhance information sharing in the form of social capital (Granovetter 1983), or tend to hinder information sharing, in a different view.

In effect information systems are in place to help employees to realise certain potentials (for example information sharing) in order to improve an organisation's productivity and increase competitive advantage. To understand how best to provide facilitation for employees, certain issues need to be understood like organisational structure and social relationships.

IS research has sometimes gone off on a tangent, trying to chase industry and going with whatever the new buzzword is and how the latest technologies can be applied without deeper understanding of these technologies and not being critical enough (Ramiller, Swanson et al. 2008).

The importance of understanding the nature of the organisation with respect to developing IS cannot be ignored, because the usefulness of IS in the tackling of organisational problems and providing improvements and efficiencies for organisations are dependent on the internal workings of the organisation. Understanding the information use is becoming increasingly important for developing IS because of the social economic and technological development (Hepworth 2007), and Johnstone and Tate (2004) write about the need to connect research about user behaviour to development of systems. Systems designers rarely take the research of users behaviour into consideration mainly because of lack of appreciation of soft research and lack of relevance of human information behaviour (HIB) research results to IS design (Fidel and Mark 2004).

Fidel and Mark (2004) in their paper described a method known as cognitive work analysis that can be used to research users, with a view to designing systems. There have not been strong developments in this area due mostly to the amount of resources it takes to conduct such a study on HIB before implementing IS, it is however still worth looking at, perhaps for the future, maybe a more streamlined approach could be developed. The focus of this paper is to discuss the uses of SNA in pre and post development of IS not quite giving a systematic guideline that leads to the design of IS, but helps to understand the IB and context of the users, and also evaluate the system when implemented.

There are several research approaches for carrying out research in organisations and understanding its internal environments, mostly qualitative methods like case studies and observations (Pickard 2007), action research (McNiff and Whitehead 2002), and others like soft systems (Checkland 1999), but taking information sharing in organisations for example and its apparent dependence on social relations in the organisation, these methods and methodologies mentioned will not take into consideration nor shed enough light on these social relationships.

The method being proposed here to help understand social relations in organisation is social network analysis (SNA). The next section gives a detailed account of SNA and its guiding principles, but it is also important to point out that understanding social

relations in organisations is not only necessary for information sharing, but also for understanding general working of most processes in the organisation. SNA is also useful in post IS development, in terms of evaluating its use in an organisational setting where collaboration between employees is very important.

2. About social network analysis (SNA)

Snow and Leach (2005) define networks as a system characterised by complex interconnectedness between its parts, and the study of which addresses the nature of relationships in the system, and not the nature of the actors in it. White (2008) quotes Wasserman and Faust (1999) in their description of a network as a “specific set of linkages among the identified sets of persons or institutions, with the additional property that the characteristics of these linkages as a whole, maybe used to interpret social action of the persons or institutions involved”. Social network research studies the members of networks and their social relationships between them from the point of view of each member.

The study of social networks finds its origin in graph theory, and goes as far back as the 1950s, when anthropologists began showing interest in understanding the relational ties between communities, and other social groups (Knox, Savage et al. 2006). It has been applied in a number of fields including sociology and politics (Wey, Blumstein et al. 2008). The study of networks has its theoretical aspects and methodological applications.

Social network theory (SNT) mostly suggests that the implications and patterns of relationships give rise to a specific behaviour. There are only a few prominent SNTs, and even at that they are not used by most social network studies (Schultz-Jones 2009). Below are brief explanations of two of the more prominent social network theories.

Strength of weak ties: This theory postulates’ that those with whom an individual has weak ties (not directly linked to) within a network are likely to be more helpful in terms of obtaining useful resources and even more influential. Granovetter (1983) who

founded the theory suggested that the strengths of a weak tie in networks are a function of three factors: frequency of contact, reciprocity and friendship.

Structural holes: This refers to the concept of identifying gaps in an organisational structure where missing linkages are and there are opportunities to help understand the behaviour of organisations (Burt 1992).

SNTs are few and far between, but the part of social network study that is widely used is the method of social network analysis to understand networks. SNA is not a theory or a set of theories; it is more of a methodological approach to understanding network structures, through mathematical concepts, which connect nodes in the networks through ties (Knox, Savage and Harvey, 2006; Wey *et al.*, 2008). These network analysis methods have been used for years to understand several types of networks; institutional, animal, virtual, etc. The main focus in this paper is on social networks analysis, and how it can aid identifying relationships that have a shared behaviour which we desire to understand.

It will not be too far-fetched if it is assumed that all forms of groups are networks, because most things are connected in one way or another, and hence lend themselves very well to be studied as networks of some kind, once the boundaries and focus of the study are identified properly. SNA is used mostly to view and analyse structures and relations that are visible from the resulting network diagrams, but it can also help reveal other abstract factors like tension and influence (White, 2008). It is safe to allege that in every social group, there are inherent issues rooted inside the relationships between the members, and SNA provides graphical, mathematical, and explanatory ways of unearthing these issues. Networks are mostly represented graphically or by using matrices, the graphical depiction helps to view the network holistically, and give insight as to how the structure can have an effect on the actors. On the other hand when they are displayed in matrices, they are mostly to aid mathematical calculations and other statistical analysis of the network.

The study of social networks, can give insight into the relationships between actors in the network, and it can go further to explain possible causes for those relationships, and any resources being shared in that relationship. On the reverse side, advances in

technology has helped to provide new ways to understand the networks, both in terms of analysis and in providing accurate data for more exploration of social networks (Harri and Kalle, et al., 2010).

There are three major factors that SNA sheds light on during analysis of the network, and they are; position, relationships, and structural patterns. Analysing them together can help to better understand occurrences in the network as a whole, or in the individual actors. Structure and position are similar in that they are physical properties of the network, but they are dissimilar in their significance to the whole and the individual. The position is mostly concerned with the individual and the structure applies to the network as a whole.

Some of the terms that are used in social network analysis and their meanings in terms of how they help to understand the network:

2.1 Binary network

A basic network with only two values in the matrix (0 and 1), with 1 signifying a connection, and 0 signifying no connection.

2.2 Valued network

A network that has 0 signifying no connection, but instead of having 1 signifying a connection, any number above 0 signifies a connection, and could also mean the strength of the relationship or the category of the relationship

2.3 Symmetric network

This is a network that does not specify direction of a link, and every connection between two actors is reciprocated

2.4 Directed networks

This is a network that specifies the direction of a link, so while actor A might be connected to actor B, actors B might not be connected to A.

2.5 Degree centrality

The total number of relations an actor has in a network. The in degree is the total number of links that come into the actors from other actors in the network, and out degree is total number of links that goes out from an actor. In a valued graph it is the sum of the values given in any direction or in both of that is the case.

2.6 Ego network

An ego network is an actor's immediate connections to with its direct neighbours, and it could be inward connections or outward connections or both.

2.7 Weight

This is the values given to the a connection in a valued network

3. Uses of SNA in information and systems research

SNA has been applied in many fields, and it can be used to understand patterns in organisations, in terms of use of resources and also to help understand the behaviour of individuals in the organisation. With regards to IS, it can also be used to evaluate the use of systems. Martínez, Dimitriadis et al. (2003) used SNA to evaluate the use of a collaborative system implemented for students, and was able to find out that the system helped improve the collaboration among students over the period of the course. However Martínez, Dimitriadis et al. (2003) did not employ the use of SNA alone, but included the use of qualitative methods which helped in having a deeper understanding of the context and users perspectives, while SNA helped to determine the level of collaboration between the users through drawing up networks from the system logs, and analysing them to see the density and amount of collaboration going on.

Toral, Martínez-Torres et al. (2009) in another study used SNA to study the open source software online communities; the study showed that SNA was used to identify members that were most effective in the community, in terms of development of open source software.

Cheuk (2007) writes about the use of SNA in the knowledge transfer program developed by the British council, and how it helped to balance individual networking links within the organisation. Hassan (2009) research shows how SNA is used to evaluate the quality of IT enabled business process intervention, as a possible alternative to business process total quality management. Wang, Man et al. (2009) also demonstrated the use of SNA in intrusion detection systems, analysing the network layer and developing social matrices that are then used to detect suspicious activities in the nodes.

SNA could also help in established areas of IS, like IT diffusion (Harri and Kalle, et al., 2010), this is another areas that it could be implemented in, to help understand those factors that influence diffusion.

Going back to the other use of SNA in understanding the organisation and its members in lieu to developing systems to help improve existing processes or encourage a certain kind of behaviour, a study which the author has recently carried out is described below to see how SNA is used in this situation.

3.1 Case study

The study was about identifying social factors that affect individuals' information sharing behaviour in organisations, and SNA was used to see the existing network in terms of information sharing resources, and identify those that share information actively and those that don't. This would then be used for the qualitative phase of the study to understand the perspectives of those in the network. The study is ongoing and would be using two organisations; one a private medium sized manufacturing company and the other a public library in a medium size and densely populated city. By understanding what factors affect the information sharing behaviour of the individual, it could either lead to developing guidelines for management to help foster such behaviour or developing requirements for information systems that would help facilitate such behaviour in the organisation, and the latter is what is of more interest here. For the purpose of this paper only the SNA part of the research is described from the first organisation, which is the private organisation.

3.1.1. Methodology

The methodology for this study is essentially mixed, with both the use of SNA and semi structured interviews at a later stage. For the purpose of this paper which focuses on the SNA part of the study, the data gathering was through online questionnaires, and quantitative analysis of the generated network followed. The implication of using self assessment questionnaires to conduct SNA is discussed later in the paper as a potential limitation.

The questionnaire used for the data collection was split into two sections. The first part pertains to the individuals' demographics, how they perceive their information sharing abilities. The questions for measuring interval variables were measured on a five point scale. The second section is about the social network where each respondent is asked to select from the department, those that share information with them, and then answer questions about frequency of sharing, communication channels, proactivity of the sharer, reliability and credibility of the sharer.

From these answers, the first section generated data about the attributes of the participants and second section was used to create relational networks of participants, based on each question. Some of the questions measured a similar kind of relation, so those questions that represented similar concepts had their networks merged by getting the average of the figures in the matrix.

The questionnaire was distributed to 13 volunteers in the department A, 9 completed the first part, and 7 completing both parts. In department B it was sent out to 9 respondents, they all completed the first part, but only 7 completed both incidentally. Table 1 shows the main questions that were asked in the questionnaire, some were measured in two parts, first as a self assessment, and the colleagues view.

Information sharing (self)	<ul style="list-style-type: none"> • I share information with colleagues at work when I come across useful information • I actively seek to distribute information to colleagues related to their daily work tasks
Information sharing (colleagues)	<ul style="list-style-type: none"> • These colleagues are actively looking to share information with me? (By active we mean; going out of their way to get you information you might need) • This colleague is always looking to distribute information to enable people work better • This colleague shares information with me

Table 1. Questions for generating network

	Department A	Department B
Density	0.738	0.69
Reciprocity	0.632	0.45
Total number of links	31	29
Cutset	A,G,E,F	A,B,D,F,G

Table 2. Network properties

Table 2 shows the number of links, the network density, diameter etc. The high density shows that the network, although small is very connected, and the links (which are directed) are a lot too for a small number of people. The maximum number of links in a directed network is $N^2 - N$, where N is the number of nodes, which in the case of both departments the network of 7 nodes is 42. In department A, the density of 0.738 shows that 73.8% of the total links available are connected in the network, which is 31 links in this network. There is also a high level of reciprocity between actors which is apparent also in the number of links and density. In department B the density is a little lower at 0.69 and we can deduce that it will have lower reciprocity from the first network since they have the same number of nodes.

A minimum cutset, which is a set of nodes that their removal would lead to a disjointed network and lead to having two or more unconnected components is shown in the table,

and department A has 4 nodes while B has 5. This is not as important as it might appear because the number of actors in the network is few, but it is interesting to note the members of the cutset because these are the central actors in the network that share or receive information the most, and in this study these actors are important.

Already a cutset that was shown in Table 2 of department A gives an indication of those that are central in this information sharing network. Of all those that are part of the cutset, actor B has a low out-degree, but was included because of its high in-degree in the network. In order to get those that share information the most in the network we take out actor A and we are left with three other actors (G, E, and F) that have been identified by their colleagues to exhibit proactive information sharing behaviour.

In the case of department B, using the cutset as a start point would be misleading as there are actors that have high out-degree and little or no in-degree in this network, meaning they share information, which is what we want, but people don't share with them. So actors like this will not be included in the cutset but obviously have the high information sharing tendencies that we are trying to identify.

So the active information sharers in department B have been identified solely using their out-degree and centrality in the network. Again there are three of them, with two being transmitters (i.e. not having any in links) and the other having both high in-degree and high out-degree, these actors are C,E,G. This discrepancy points out the need for the researcher's discretion while using SNA, which comes with experience of using it.

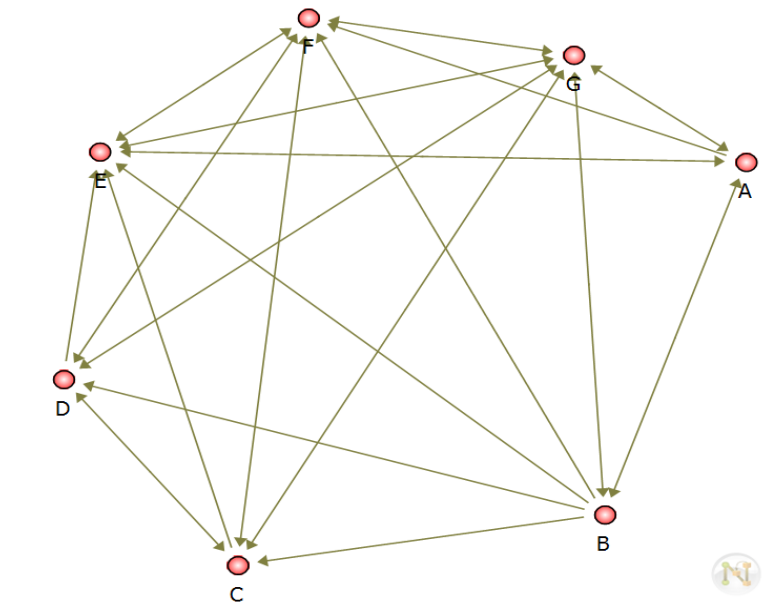


Figure 1. Network diagram for department A

These central actors can also be viewed graphically using the network diagrams, as depicted in Figure 1. For the study to be complete, there is the need for qualitative data collection to fully understand the network, but SNA provides a huge starting point for the qualitative analysis with regards to those who you might want to question, and what you might like to ask them about. For example using the reciprocity of links in the network, you might want to investigate further if individuals tend to share information with those that share with them in return. There are other indicators like this that SNA can give, but this is a limited view of the data, as the study is still ongoing. This is a short example of how SNA can be used to understand the organisational environment and its members to help in designing of IS systems to help improve organisational processes, based on the phenomena of interest.

However as useful as SNA has come to prove both in the academic world and in industry, it has some limitations which is necessary to tackle in this paper for those who might wish to apply it in one way or another. The next section looks first at the general limitations of SNA and the limitations that are particular to the case study provided above.

4. Limitations of SNA

Below are some of the limitations that SNA is said to have based on research in different areas and some specific to the case study presented above.

4.1 Limited understanding

SNA is a very good tool to help understand patterns and get pointers with regards to the current situation, but Martínez, Dimitriadis et al. (2003) show in their study of evaluation of computer-supported collaborative learning (CSCL) systems, that there is only so much understanding you can get from implementing SNA alone, Martínez, Dimitriadis et al. (2003) further employed the use of qualitative methods just like in the case study presented here plans to do in future research. SNA will help to see the bigger picture and also help identify partly existing problems, but to understand the in-depth reasons behind these problems or attaching proper and relevant meaning to the big picture, there is the need to integrate a more interpretive method to gain further understanding. To support this, prominent researchers in SNA like Borgatti and Cross (2003) have also used qualitative methods alongside SNA to understand the phenomena under study better.

4.2 Reliability and Validity

Authors have often pointed to the issue of validity of data collected for SNA and the reliability of the collected data. Ferligoj and Hlebec (1999) and Galaskiewicz and Wasserman (1993) alluded to this in their papers about research using SNA and general overview of SNA respectively. The concern lies with how accurate the data is in terms of participant reliability in answering questions, from which the network is generated. The second being about painting the right picture, that is, if the resulting network actually portrays what the organisation is in terms of the phenomena under study.

With regards to the first concern, this would only occur in a situation where SNA is used to research current organisational setting and its members, which is the first type of research pointed out that SNA can be used for in organisations.

When it comes to evaluating systems like Martínez, Dimitriadis et al. (2003) did in their study, the use of system logs does not generate such a problem, so this means the evaluation of systems using SNA as a tool becomes more reliable.

On the issue of portraying the right picture, Penuel, Sussex et al. (2006) points out that missing data makes the network representation in SNA inaccurate. Indeed to see the whole and accurate picture, every detail needs to be clear. Again with regards to the use of SNA in systems evaluation, this might not be an issue, as all the users of the system would have records in the logs and hence no missing data.

4.3 Ethics

There are of course ethical issues with the use of any methodology and or methods in research, and SNA is no different, however there are heightened problems with regards to the data collection and also presentation. This is mostly due to the nature of the questions used to generate the network and how recommendations are presented using networks to senior people in the organisation in some cases.

In Penuel, Sussex et al. (2006) research in schools about how teachers felt about sharing sensitive data like whom they trusted, and who they share information with, most participants felt the questions were a bit too prying, but some also state that wording the questions differently might make it less intrusive. In the same study they found that sharing the resulting network diagram was detrimental to certain individuals, because although names might be made anonymous, to make sense of the data sometimes departments might need to be included or other structural connotations, which might lead to unwarranted backlashes for those in that part of the organisation. This seems to be more of a problem with practitioners using SNA for organisational interventions, because for researchers, giving back recommendations is not always mandatory, but in some cases like the case study in this paper, organisations do expect recommendations, albeit not mandatory.

Below are limitations of SNA which the author has identified from the case study in this paper.

4.4 Contradictory data (Self and colleague attestation)

This is about data being collected about the same resource or phenomena in the organisation, from both the respondent and their colleagues. For example in the case study presented in this paper, the same question about information was asked each individual and then asked their colleagues, so in some instances when a participant felt that they shared information with a certain other, the colleague did not agree or feel the same way. This is not a generic limitation of SNA, because questions are usually asked in one way only, but the case study here tried to improve the validity of SNA data by asking colleagues too, and in the end the network was constructed using the colleagues' answers as opposed to the individuals' response about their activities. With the assumption that the testimony of two or more is more reliable than that of one participant, this has helped to improve the validity of the data. However it could only be used in certain studies like this, because the main aim of constructing the network was to identify central information sharers that could be identified by colleagues. In another situation where the objective of the research is different this technique might not be applicable.

4.5 Can be mechanistic in the study of behaviour

The study of human behaviour is always difficult and involves more than meets the eye. This is the case with using SNA to understand the individuals in the network. It appears too mechanical in its prescriptions and views of what, who and how individuals are influenced or affected by others in the network. For example proximity in the network could be said to be directly related to exerting influence on another (Wasserman and Faust 1999), which might not be the case with further inquiry. It is for this reason that as

stated earlier, there is the advice to use some qualitative methods to further understand underlying reason behind patterns in the network. There are studies like Anderson's (2002) study of medical informatics that use SNA to describe prescriptive behaviour of practitioners, and he uses just the network and its mathematical deductions to try to explain behaviour.

4.6 Static picture

While this appears to be a general limitation of SNA, it is mostly worked around by researchers carrying out longitudinal studies (Martínez, Dimitriadis et al. 2003). The network diagram without a doubt gives a picture of the organisation at only one point in time which could give a picture that is only temporary, and may be due to certain factors at that point in time and not actual representations of the organisation as a whole in the longer term. In the case study described here, static data was used, mostly because of limitations in terms of access and time, but with further data collections with qualitative methods, it should reduce the overall effect the static data might have on the picture of the organisation.

This also brings up the topic of stability of network and what should be done to optimise the network. Researchers like Latour (1987) in his actor network theory tend to be of the idea that stability and consolidation helps improve networks, while Loon (2006) on the other hand suggests that networks should be open to change and in a sense be fluid, which makes the nature of the network transformative. Perhaps this is a debate more suited to SNA experts, but it is food for thought which is necessary for anyone planning on using SNA for any kind of organisational inquiry or intervention.

5. Discussion

Having looked at research in organisations and identified the need to understand user behaviour and context in developing IS, the paper has gone further to explain some

methods that might be helpful in both identifying these behaviours that would help design better IS and evaluating IS. Using a case study SNA has been discussed in its use to understand the organisation and its members, and also briefly on how it has been used in evaluation of IS.

The use of SNA pre IS development, by no means leads straight to the design of IS, what it does is give a somewhat holistic picture of the user, their social environment and organisational context in general. This is then used to feed design of the system, not by actual activity of the user but by providing functions that will increase the user's experience and productivity by using the system.

In evaluating the finished system, if you take a snapshot, as it were, of the network of the existing process and take a snapshot again after the system is in place, you can measure the effectiveness of the system in simplifying or improving that particular business process. However, this is all dependent on the nature of the process and the organisation, which is why it imperative that, the earlier study of understanding the environment and the user is carried out as well.

Having said that, the author is aware that these studies do require a lot of resources and experience, and might not be feasible in many systems projects, due to resource limitation. An exception to this could be in large projects, where it will be well worth investing the time and resource into understanding the user and organisation in-depth before development takes place, in order to get a good outcome for the magnitude of the project. The reality that is beginning to emerge is that technology will help understand networks better, and networks would help understand users of technology in organisations better, and the possibilities are still evolving and wide ranging.

6. Conclusion

There seems to be a lot of research on the information user and their behaviour, but not much of that is passed on to the development of IS for these users. With IS researchers and practitioners not paying much attention to understanding the organisation and its members in more detail before embarking on developing systems. The need for this

understanding has been highlighted in this paper, and SNA as a tool to aid this understanding has been discussed. The use of SNA post IS development was also stressed in terms of evaluating the system. Some limitations of SNA were discussed also to help and guide those who might be interested in applying this technique.

Hopefully this paper was able to highlight the importance of SNA, not just in organisational research as a whole, but in IS research and also shown ways in which it can be used. This is more about adding to the debate about the issue of studying the user behaviour well before embarking on developing IS and hopefully this paper has giving a little weight to this issue and demonstrated its importance to IS.

References

Anderson, J. G. (2002). "Evaluation in health informatics: social network analysis." *Computers in Biology and Medicine* 32(3): 179-193.

Baird, L. and J. C. Henderson (2001). *The Knowledge Engine: How to Create Fast Cycles of Knowledge-to-performance and Performance-to-knowledge* San Francisco, Berrett-Koehler.

- Bock, G.-W., R. W. Zmud, et al. (2005). "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organisational Climate." *Management Information Systems Quarterly* 29(1).
- Borgatti, S. P. and R. Cross (2003). "A Relational View of Information Seeking and Learning in Social Networks." *Manage. Sci.* 49(4): 432-445.
- Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition* Cambridge MA, Harvard University Press.
- Checkland, P. (1999). *Systems Thinking, Systems Practice*, Wiley & Sons.
- Cheuk, B. (2007). "Social Networking Analysis
Its application to facilitate knowledge transfer." *Business Information Review* 24(3): 170-176.
- Davenport, T. (1997). *Information Ecology*. New York, Oxford University Press.
- Ferligoj, A. and V. Hlebec (1999). "Evaluation of social network measurement instruments." *Social Networks* 21(2): 111-130.
- Fidel, R. and P. A. Mark (2004) From information behaviour research to the design of information systems: the Cognitive Work Analysis framework. *Information Research* 10,
- Galaskiewicz, J. and S. Wasserman (1993). "Social Network Analysis: Concepts, Methodology, and Directions for the 1990s." *Sociological Methods Research* 22(1): 3-22.
- Granovetter, M. (1983). "The Strength of Weak Ties: A Network Theory Revisited" *Sociological Theory* 1: 201-233.
- Harri, O.-K., L. Kalle, et al. (2010) "Social Networks and Information Systems: Ongoing and Future Research Streams." *Journal of the Association for Information Systems* 11(2): 61-68.
- Hassan, N. R. (2009). "Using Social Network Analysis to Measure IT-Enabled Business Process Performance." *Information Systems Management* 26(1): 61-76.
- Hatala, J.-P. and J. George Lutta (2009). "Managing information sharing within an organisational setting: A social network perspective." *Performance Improvement Quarterly* 21(4): 5-33.
- Hepworth, M. (2007). "Knowledge of information behaviour and its relevance to the design of people-centred information products and services." *Journal of Documentation* 63(1): 33-56.

- Johnstone, D. and M. Tate (2004). Bringing human information behaviour into information systems research: an application of systems modelling. *Information Research*. 9.
- Knox, H., M. Savage, et al. (2006). "Social networks and the study of relations: networks as method, metaphor and form." *Economy & Society* 35(1): 113-140.
- Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers through Society*. Milton Keynes, Open University Press.
- Loon, J. v. (2006). "Network." *Theory, Culture & Society* 23(2-3): 307-314.
- Martínez, A., Y. Dimitriadis, et al. (2003). "Combining qualitative evaluation and social network analysis for the study of classroom social interactions." *Computers & Education* 41(4): 353-368.
- McNiff, J. and J. Whitehead (2002). *Action research : principles and practice*. London, RoutledgeFalmer.
- Morgan, G. (2006). *Images of organisation*. California, Sage Publications.
- Penuel, W. R., W. Sussex, et al. (2006) Investigating the Potential of Using Social Network Analysis in Educational Evaluation. *American Journal of Evaluation* 27, 437-451
- Pickard, A. J. (2007). *research methods in information*. London, Facet Publishing.
- Ramiller, N., E. B. Swanson, et al. (2008). Research Directions in Information Systems: Toward an Institutional Ecology. *Journal of the Association for Information Systems*. 9.
- Schultz-Jones, B. (2009). Examining information behavior through social networks: An interdisciplinary review. *Journal of Documentation, Emerald*. 65: 592 - 631.
- Snow, R. M. and E. A. Leach (2005) *Social Network Analysis and Systems Change*.
- Toral, S. L., M. R. Martínez-Torres, et al. (2009). "Analysis of virtual communities supporting OSS projects using social network analysis." *Information and Software Technology* 52(3): 296-303.
- Wang, W., H. Man, et al. (2009). "A framework for intrusion detection systems by social network analysis methods in ad hoc network." *SECURITY AND COMMUNICATION NETWORKS* 2: 669-685.
- Wasserman, S. and K. Faust (1999). *Social Network Analysis*. Cambridge, MA, Cambridge University Press.
- Wey, T., D. T. Blumstein, et al. (2008). "Social network analysis of animal behaviour: a promising tool for the study of sociality." *Animal Behaviour* 75: 333-344.

White, L. (2008). "Connecting organisations: Developing the idea of network learning in inter-organisational settings." *Systems Research and Behavioral Science* 25(6): 701-716

APPENDIX B

Survey Questions

Survey Questions

Part 1 (Self-observation questions)

1.* What age group do you belong to?
16-25 26-35 36-45 46-55 56-60 above 60

2.* Are you male or female?
Male Female

3.* What role do you have in the department?

4.* How long have you been at the department?

The following questions relate to your information sharing

5.* I share information with colleagues at work when I come across useful information?

Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

6.* Which channels do you prefer using to share information with colleagues?

Phone

Email or other IT software

Word of mouth

7.* I actively seek to distribute information to colleagues related to their daily work tasks?

Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

8. If you agree or strongly agree with question 7, could you please give a reason or motivator for your active information sharing?

9.* My colleagues' position affects the way that I share information with them. E.g. your boss as opposed to a team member

Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

10. If you agree or strongly agree with question 9, could you please give an explanation for this?

11.* To what extent do the following factors contribute to your ability to share information with colleagues? Please rate in order of importance, where 1 is least relevant and 5 is most

	1	2	3	4	5
Credibility and reliability					
Feeling valued and respected					
Availability of relevant IT systems e.g emails, Lotus notes etc.					
General Wellbeing e.g sound mind, feeling good					
Colleagues position in the organisation					

12.* List 3 attributes that you require in a colleague that might increase your chances of sharing information with them? E.g. Honesty, reliability etc.

13. On a scale of 1 to 10 where would you rate your general wellbeing? where 1 is very bad, and 10 is excellent

The following questions relate to the organisations environment

14.* The values and norms in my organisation promotes information sharing

15.* If There are many unnecessary official procedures in the organisation

16.* Being proactive in the organisation is met with reward e.g Good feedback, Incentives e.t.c

Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

The last section here asks questions about your predisposition

17.* I love being a champion for my ideas, even against others opposition
Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

18.* I do not look for better ways to do things (reverse coded)
Strongly disagree, Disagree, Uncertain, Agree Strongly agree

19.* I feel driven to make a difference in my community, and maybe the world

Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

20.* Nothing is more exciting than seeing my ideas turn into reality
Strongly disagree, Disagree, Uncertain, Agree, Strongly agree

Part II (After selecting those that you interact with in the organisation)

1.* What is the nature of the relationship between you and the selected colleagues.

Boss Supervisor Fellow team member Subordinate

2.* State if your interaction with this colleague is formal or informal (by formal we mean strictly work interactions and informal meaning a closer association)
Formal Informal

3.* Which channels do they use to share this information with you?
Email or other IT software e.g. lotus notes Phone Conversation

4.* This colleague is often very reliable
Useless Slightly useful Neither Useful Very useful

5.* This colleague shares information with me
Strongly disagree Disagree Uncertain Agree Strongly agree

6.* This colleagues are actively looking to share information with me? (By active we mean; going out of their way to get you information you might need)
Strongly disagree Disagree Uncertain Agree Strongly agree

7.* This colleague is always looking to distribute information to enable people work better
Strongly disagree Disagree Uncertain Agree Strongly agree

8.* This colleague is always driven to make a difference in the department and organisation
Strongly disagree Disagree Uncertain Agree Strongly agree

9.* This colleague tends to take the initiative in starting up new projects or ideas
Strongly disagree Disagree Uncertain Agree Strongly agree

10. This colleague is always reluctant to help out with anything (reverse coded)

11. This colleague is not always credible and I cannot trust them fully

APPENDIX C

Semi-structured Interview Questions

Semi-structured Interview Questions

The Rickter Company

Frame of Reference: Osemeke Mosindi

Northumbria University

“Please hold the board with one hand, putting the fingers of your other hand on the top slider. (Ensure by this time that the individual is holding the Rickter scale themselves. Do not touch the board at all from this point on).

Notice that the slider moves all the way from 0 to 10. Would you please move each slider to the half way mark – the 5. Now when I ask you a question about each heading, just move the slider to where you feel it shows your answer - where it represents what you are thinking. So, your answer maybe 0,1,2,3,4,5,6,7,8,9 or 10, wherever you feel it best answers the question. Please keep your fingers on the sliders as much as possible”.

1. Job satisfaction

How happy are you with your job?

10: you are very happy with your job.

0: you are not happy with it at all.

2. Cooperation:

How well do you feel your colleagues cooperate with each other?

10: you feel your colleagues cooperate with each other very well.

0: you feel they don't cooperate with each other at all.

3. Information sharing:

How well do you feel you share work-related information with colleagues?

10: you feel you share work-related information with colleagues very well.

0: you feel you don't share work-related information at all.

4. Sense of Involvement:

How much do you feel part of the activities that go on within the department?

10: you feel very much part of the activities that go on within the department.

0: you feel no part of the activities at all.

5. Past experience (R):

How much do you feel your past experiences with colleagues affect your willingness to share information with them?

10: you feel that your past experiences very much affect your willingness to share information.

0: you feel your past experiences don't affect your willingness at all.

6. Proactivity:

How proactive do you feel you are in your work role?

10: you feel you are very proactive in your work role.

0: you feel you're not proactive at all.

7. Trust:

How much do you feel that trust influences you sharing information with colleagues?

10: you feel that trust very much influences you sharing information.

0: you feel that trust doesn't influence you at all.

8. External pressure (R):

How much do you feel pressured into sharing information with others?

10: you feel very pressured into sharing information.

0: you don't feel pressured at all.

9. Role:

How much do you feel your role in the department affects you sharing information with colleagues?

10: You feel your role in the department very much affects you sharing information.

0: you feel your role doesn't affect your sharing information at all.

10. Well-being:

How much is your sharing of information affected by your own feeling of well-being?

10: your sharing of information is very much affected by your own feelings of well-being.

0: your sharing of information is not affected by them at all.

Other Interview Questions

Outcome

What are the outcomes that you expect when you share information with a colleague?

Motivator

1. What would you say helps you to share information if at all? For example something in the organisation or the people
2. What is the most motivating of these factors?

Barriers

1. What would you say hinders you from sharing information with colleagues? It could be anything from feelings, relationships or the organisation as a whole
2. What would you say is hinders you the most?
 1. Would you say sharing information and helping others is a norm in this department?
 2. Is there openness to criticism in the department or organisation as a whole?

Extra questions for the second phase of the research

1. Can trust in a person increase with time? Or just trust in their abilities
2. Does the organisation allow those in lower roles to be more active? (Like give them reasonable responsibility)
3. Is there anything that might put you in a mood where you don't feel like sharing information?
4. Does having increased knowledge about your job role improve your job satisfaction?
5. Which is more important to you? Trust in a person's abilities or trust in their character. If you were to consider sharing information with them?
6. Does having pressure on the job, bring about variety which leads to proactivity, or does it reduce proactivity?
7. Is there a resistance to change in the organisation?
8. If you have a past experience of some sort, with a colleague you share an informal relationship with; does it affect how you share with them next time? As opposed to one whom you share a formal relationship with?
9. Are you less satisfied with your job, when you don't have the authority to be proactive?
10. Since being proactive leads to acquiring knowledge, and acquiring knowledge can make one proactive. **Does that mean being proactive puts one in a position of power?**
11. Does dissatisfaction with your job, reduce your level of involvement in the organisation?
12. Does feeling important or valued in the organisation, make you tend to share more actively in the organisation?
13. What things for example would lead you to having this feeling of importance?
14. Do you think being proactive is always a good thing in your organisation?
15. What are your short and long term goals, within or outside this organisation? say in the next 5 years

APPENDIX D

Research Poster



Organizations & Metaphors

The need for organizations to survive, have led to researchers conceptualizing organizations by using metaphors from different disciplines, seeking to understand human enterprises as organisms, machines, political systems, etc

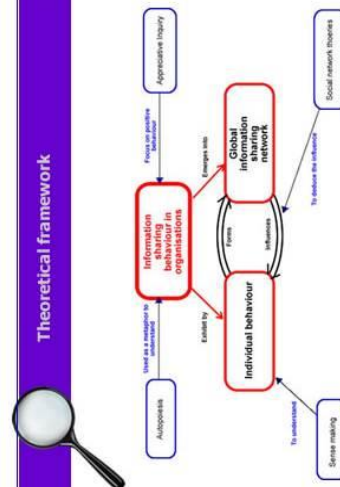
Aims and objectives

To explore in depth, factors that influence proactive information sharing behaviour, and understand the importance in which these factors influence sharing behaviour.

Objectives:

- Carry out a critical review of the underpinning theories and models relating to information sharing
- Compose and tailor techniques to identify those that share information proactively in organisations
- Identify factors that influence the proactive information sharing individuals
- Critically review the findings
- Evaluate the methods used and make recommendations on how to cultivate information sharing behaviour

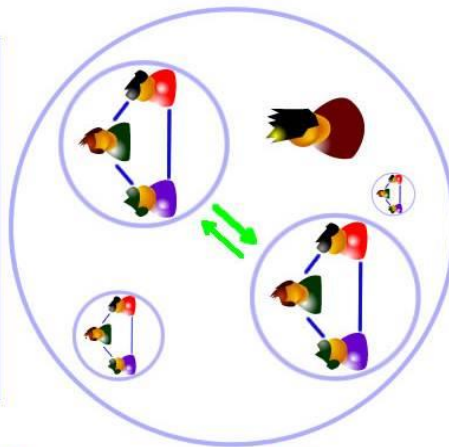
Theoretical framework



Background and Problematic situation

There is a problematic situation that has risen from a manufacturing company with regards to information sharing and usage between departments in the organization.
They need to improve information transfer and sharing, to ensure that departments get the information they need and timely too.

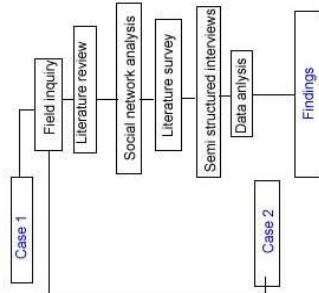
This study used the situation to explore information sharing behaviour in the organizations.



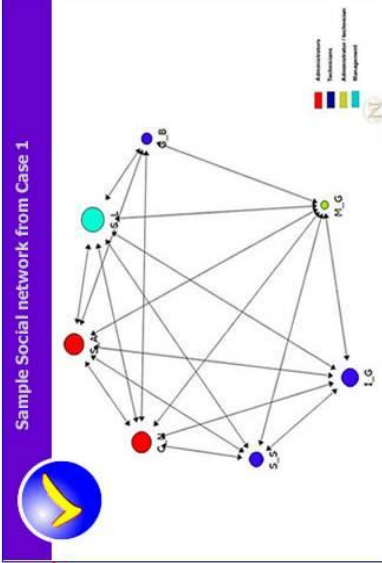
Contribution to knowledge

- The development of an understanding of factors for proactive information sharing behaviour in organisations.
- The understanding of importance between factors in proactive information sharing.
- The development of tools to identify proactive information sharing behaviour.

Research Approach



Sample Social network from Case 1



APPENDIX E

Process of Analysing the SNA data

Process of Analysing the SNA data

1. Run a VB macro script on the excel data to select the matrices for each network and put them into a different work sheet, so every network is represented by a different worksheet. This makes it easy to import into the software.
2. Import the main node data, which includes the data about participant demographics and self-assessment answers.
3. Import each network data, which is represented by each work sheet previously separated in step 1. Each network is represented as a different subset of the main node data, and an automatic match is made linking the main node data to the relationships, using the names.
4. The matrix that represents the only question that was reverse coded, which is about reluctance of a colleague, is reversed, to represent the actual intended values.
5. The matrices that represents questions about initiative, driven to make a difference, and reluctance (reverse coded), are merged together to form the proactive personality matrix.
6. The matrices that represent questions about frequency and distribution of information are merged to form the information sharing matrix.
7. The information sharing matrix is merged with the matrix that represent the question on actively sharing information, which then form the actively sharing matrix.
8. The proactive personality matrix, the actively sharing matrix and the information sharing matrix are all transposed [explain] to ensure that colleague assessment is now represented as an individual's score, instead of appearing like the score the individual was given my colleagues.
9. The Credibility Matrix which is reverse coded, is reversed, so that the scores represent the actual values that were intended.
10. The matrices representing the questions on Reliability and Credibility both to give transposed to give the individuals they average of the figures from colleagues as an indication of their trust score in the matrix.

APPENDIX F

Network matrices

Network matrices

	A	B	C	D	E	F	G
A	0	1	0	0	1	1	1
B	1	0	1	1	1	1	1
C	0	0	0	3	2	3	3
D	0	0	1	0	3	3	3
E	1	0	0	0	0	1	1
F	0	0	3	3	1	0	1
G	1	1	1	1	1	1	0

Information sharing channels matrix

	A	B	C	D	E	F	G
A		5			5	5	5
B	3		3	3	3	3	5
C				4	2	3	3
D			4		4	4	4
E	3					5	5
F			5	5	4		5
G	4	4	4	4	5	5	

Information sharing frequency matrix

	A	B	C	D	E	F	G
A	0	3	0	0	4	4	5
B	4	0	4	4	4	2	5
C	0	0	0	3	3	3	4
D	0	0	4	0	4	4	4
E	2	0	0	0	0	4	5
F	0	0	3	4	4	0	4
G	3	4	5	3	5	5	0

Information distribution matrix

	A	B	C	D	E	F	G
A	0	4	0	0	4.5	4.5	5
B	3.5	0	3.5	3.5	3.5	2.5	5
C	0	0	0	3.5	2.5	3	3.5
D	0	0	4	0	4	4	4
E	2.5	0	0	0	0	4.5	5
F	0	0	4	4.5	4	0	4.5
G	3.5	4	4.5	3.5	5	5	0

Information sharing matrix (information frequency matrix + information distribution matrix)

	A	B	C	D	E	F	G
A	0	1	0	0	2	1	2
B	2	0	2	2	2	2	2
C	0	0	0	1	2	1	2
D	0	0	2	0	2	2	2
E	2	0	0	0	0	1	1
F	0	0	2	2	1	0	2
G	2	2	2	2	2	2	0

Formal / informal matrix

	A	B	C	D	E	F	G
A	0	1	0	0	1	1	3
B	1	0	1	1	1	1	3
C	0	0	0	1	1	1	3
D	0	0	1	0	1	1	3
E	1	0	0	0	0	1	3
F	0	0	1	1	1	0	3
G	4	4	4	4	4	4	0

Boss team member relationship matrix

	A	B	C	D	E	F	G
A	0	3	0	0	4	4	5
B	3	0	3	3	3	3	4
C	0	0	0	3	2.5	3	4
D	0	0	4	0	3.5	3.5	4
E	2.5	0	0	0	0	3.5	4.5
F	0	0	3.5	4	4	0	4
G	3	3	4.5	3	4.5	4.5	0

Proactive information matrix

APPENDIX G

Sample consent form

Sample consent form

Northumbria University
CEIS Research Ethics Sub-Committee
CONSENT FORM – C

Project Title:

Name of the Researcher or Project Consultant:

Name of participant:

Roles in organisation:

I consent to take part in this project. ☐

I have had the project explained to me by the researcher/ consultants **and been given an information sheet**. I have read and understand the purpose of the study. ☐

I am willing to be interviewed.

I understand and am happy that the discussions I will be involved in may be audio-taped and notes will be taken. ☐

I understand I can withdraw my consent at any time, without giving a reason and without prejudice. ☐

I understand that the researcher may contact my department members as part of the research project ☐

I know that my name and details will be kept confidential and will not appear in any printed documents. ☐

- The tapes and any personal information will be kept secure and confidential. They will be kept by the researcher/project consultants until the end of the project. They will then be disposed of in line with Northumbria University's retention policy.
- Anonymised summaries (if required) will be produced from the discussions to be used in the project report and in other publications. None of the participants will be identified in the project report or in other publications based on this project. Copies of any reports or publications will be available on request to participants.

I have been given a copy of this Consent Form.

Signed:

Date:

Researcher/Project consultant: I confirm that I have explained the project to the participant and have given adequate time to answer any questions concerning it.

Signed:

Date:

APPENDIX H

Conference Paper

Towards Complementarity between Systems Approaches and Social Network Analysis

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Abstract

This paper discusses an analysis method that can help understand social systems from the actors' perspectives and still maintain some level of objectivism. It suggests the use of Social Network Analysis (SNA) alongside systems modelling approaches like Soft Systems Methodology (SSM), to analyse and achieve insight into the system's behaviour, by combining the mapping of interactions with the actors' perspectives based on qualitative data. This allows the identification of relational factors that would otherwise not be brought up by analysing the resulting models alone. Comparison is also drawn between SNA and other existing systemic diagramming techniques, such as systems maps that aim to achieve similar results as SNA, which further shows the advantage SNA can bring to the analysis stage of a systemic inquiry.

The similarities as well as distinct features of SSM and SNA are the basis on which this paper argues that additional insight can be revealed, when used to complement each other.

Introduction

Systems thinking methods and systems modelling aim at improving systems, by carrying out diagnosis, analysis and eventually, change in the situation of concern. While systemic interventions in mechanistic systems have been fairly straightforward and relatively successful, it has not been the case with interventions in social systems, due to their intrinsically complex nature. Soft Systems Methodology (SSM) was developed, and used to address improvement in social systems (Checkland, 1999). However, while the ‘rich picture’ explores the situation from a variety of worldviews, in most cases, the analysis is done from the analyst or researchers point of view, which leads to different analysts possibly having different diagnosis of the system (Snow & Leach, 2005).

Social network analysis (SNA) is a social science method of analysing organisations or social systems in context, and those involved in it. The network itself is a system, and network analysis, has followed systemic patterns over the years.

This paper goes on to describe the basic principles of SNA and how they can help in analysis of social systems. A brief account of the origin of SSM is also described, and the underlying assumptions of SSM are pointed out. Similarities, difference and possible complementarity between systems approaches, like SSM and other modelling techniques like system maps and influence diagrams, and social network analysis, are discussed. The terms social systems, social networks and organisations, are used interchangeably in this paper, to mean a system of individuals, of which an example is an organisation.

Social Network Analysis (SNA)

Snow and Leach(2005) define networks as a system characterised by complex interconnectedness between its parts, and the study of which addresses the nature of

relationships in the system, and not the nature of the actors in it. White(2008) quotes Wasserman & Faust(1999) in their description of networks as “specific set of linkages among the identified set of persons or institutions, with the additional property that the characteristics of these linkages as a whole, maybe used to interpret social action of the persons or institutions involved”. Social network analysis (SNA) research studies the members of networks and their social relationships between them, from the point of view of each member.

SNA finds its origin in graph theory, and goes as far back as the 1950s, when anthropologists began showing interest in understanding the relational ties between communities, and other social groups (Knox, Savage & Harvey, 2006). It has been applied in a number of fields; sociology, politics (Wey *et al.*, 2008). SNA is not a theory or a set of theories, it is more of a methodological approach to understanding network structures, through mathematical concepts, which connect nodes in the networks through ties (Knox, Savage & Harvey, 2006; Wey *et al.*, 2008). These network analysis methods have been used for years to understand several types of networks; institutional, animal, virtual, etc. But the main focus in this paper is on social networks, and how it can aid the systemic process of intervention.

It will not be too far-fetched if it is assumed that all forms of groups are networks, because most things are connected in one way or another, and hence lend themselves very nicely to be studied as networks of some kind, once the boundaries and focus of the study is identified properly. SNA is used mostly to view and analyse structures and relations that are visible from the resulting network diagrams, but it can also help reveal other abstract factors like tension, influence (White, 2008). It is safe to allege that in every social group, there are inherent issues rooted inside the relationships between the members, and SNA provides graphical, mathematical, and explanatory ways of unearthing these issues. Networks are mostly represented graphically or by using matrices, the graphical depiction helps to view the network holistically, and give insight as to how the structure can have an effect on the actors. On the other hand when they are displayed in matrices, they are mostly to aid mathematical calculations and other statistical analysis of the network. Fig. 1 shows a sample network represented graphically and also in a matrix form.

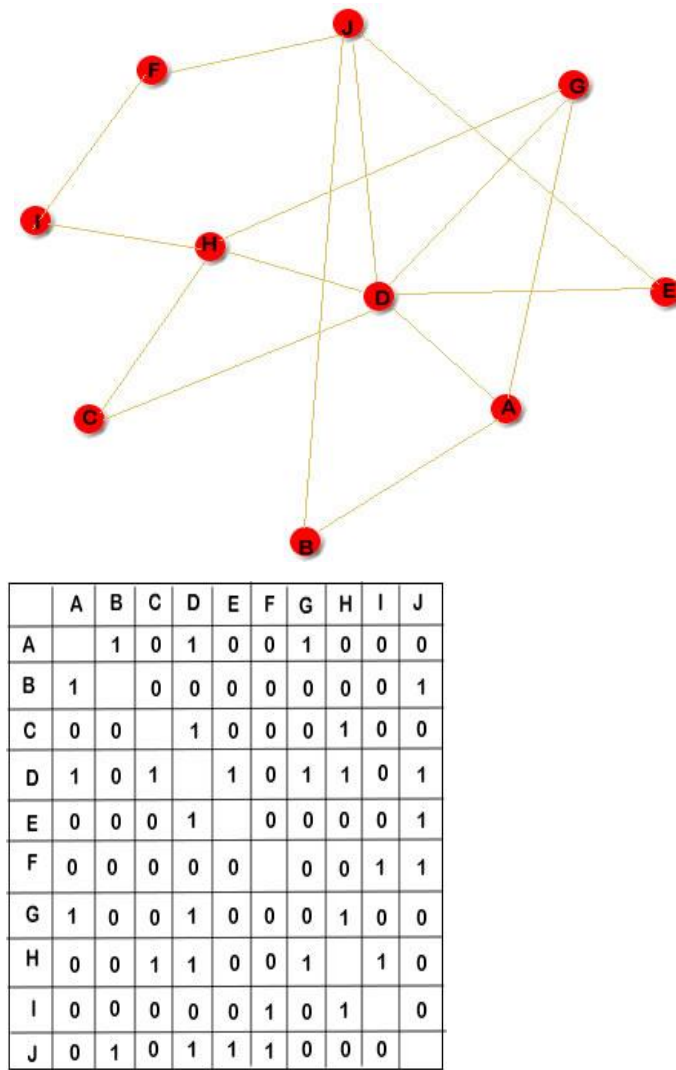


Fig. 1. Sample Network Diagram

In Fig. 1, the nodes represent actors, and the lines connecting them, represent relationships between the actors. In the matrix, the number one is used if a node is related to another node, and zero otherwise. The matrix is the basis for which quantitative analysis is carried out, but that is beyond the scope of this paper. Networks can be studied from the outside in (holistic view) or from the inside out (ego centric) (Wey *et al.*, 2008; White, 2008). The holistic view looks at the network and analyses how the network properties can affect the relationship between actors. The individualistic or ego centric way of studying networks, looks at the networks from an

actor's perspective and how that actor is related to others (referred to as alters) in the network, which gives a more in depth understanding of a particular actor and their sub network. For instance, the actor's sexual network can be studied, the actor's information seeking links can be studied as a network as well, and almost anything that requires the actor to relate with others can be studied as a network.

The study of social networks, can give insight into the relationships between actors in the network as explained, and it can go further to explain possible causes for those relationships which indeed will aid any intervention or change process in the network or system. In interdisciplinary terms, "the social goals of sociometry are tied to the pragmatic goals of system science" (Snow & Leach, 2005).

There are three major factors that SNA sheds light on during analysis of the network, and they are; position, relationships, and structural patterns. Analysing them together can help to better understand occurrences in the network as a whole, or the individual actors. Structure and position are similar in that they are physical properties of the network, but they are dissimilar in their significance to the whole and the individual. While the position is mostly concerned with the individual, the structure applies to the network as a whole.

Position

This refers to the position which a node takes up in a network. This is all relational, so it's not an actual position, but that which is afforded it by virtue of its relationship with other nodes. Looking at Fig. 1, immediately you would notice that node D and H appear to be more central than the other nodes, because they possess more relationships to other nodes. In SNA terms this is referred to as degree of centrality.

Degree of centrality is the number of direct connections that a node possesses in a network, and at first glance researchers are tempted to suggest that nodes with high degree of centrality are active players in the network, a hub or gateway for others, but the nodes that they are connected to, matter as well. The context of the study also determines if this is an advantageous position or not. Having a high degree of centrality

might be advantageous in information exchange networks, but it certainly is not the case in a sexual network of STD's (Wey *et al.*, 2008).

Structure

This has to do with the holistic view of the network, which is more visible from viewing the network diagram, although some mathematical calculations can be used to understand certain phenomena in networks as well.

Density: In SNA the density of a network refers to the ratio of actual ties to all possible ties, and it can be argued that a network with higher density possesses more ties per node, and hence is more cohesive than a less dense network, which would allow for easier flow of resources through the network.

Diameter is the longest path length, across the network i.e. the highest amount of steps it takes for a node to reach another node, and it can be argued that the lower the diameter the faster it is for the nodes to get resources from other nodes in the network.

Relationships

This is the essence of a network, and the very reason, why networks exist. The type of relationship being studied, determines what meaning most of the analytical techniques used in SNA would hold. While some relationships lend themselves easily to be studied quantitatively, others are more complex, like studying a network of power relations, or influence. It becomes less explainable with just quantitative measures, what the structure and position provide for SNA. Here in lies the need for qualitative techniques, which the authors suggest, to further interview actors that have been identified from the network, to be of interest to the study, to help reveal the softer issues, which might not be seen with just quantitative analysis. But it should be noted that it is important that the network be developed and all quantitative analysis exhausted before the actors in positions of interest or of structural importance to the network under study are further interrogated using qualitative techniques.

There are distinct similarities between the Social Network Analysis and the systems thinking approach. Cezarino & Beltrán(2009) define a system as “organised and interrelated components, operating with determined objective inside autonomous framework structure” and systems thinking as a global approach that focuses on understanding systems complexity, by understanding the interactions among its constituting elements. The similarities between that SNA and systemic methodologies are observed in terms of looking to understand structure and relationships.

There are several systems approaches and one of the most prominent ones in use in social systems is Soft Systems Methodology (SSM), so in relevance to this paper, the focus would be on SSM and two other diagramming techniques that have a common ground for comparison with SNA. The following sections explore the assumptions behind the Soft Systems Methodology and the potential complementarity between SSM and SNA for systems’ exploration and analysis, and a brief look at two other systemic diagramming techniques and their relation to SNA.

Soft Systems Methodology

Soft systems is a methodology that aims to bring about improvement in areas of social concern by activating in the people involved a learning cycle which is iterative and ideally does not end. The learning takes place through the iterative process of using systems concepts to reflect upon and debate perceptions of the real world, and take action in the real world, then reflect again using the system concepts. These reflection and debates are conceived as holistic ideal types of certain aspects of problem situation rather than as accounts of it. It is taken as given that no objective and complete account of a problem situation can be provided (Checkland, 1999). The output of the methodology is learning, and this generates actions with the knowledge that these, in their turn, will lead to a changed situation and consequently, to new learning rather than to direct solution to the problem. The aim of the methodology is to answer two key questions: What is to be improved? And how is it to be improved?

For soft problems, like most problems involving social groups, with their complex interactions and individual perceptions, the notion of a problem being solved has to be replaced by the concept of problem solving as a continuous never-ending process of learning, aided by systemic ideas. Human systems are crucially different from designed systems, since they take their structure from the perceptions of human actors who are part of them and who are free to attribute meaning to what they perceive (Checkland, 1999). There is not a single testable account of human systems, only possible accounts, all valid in their own right, according to a particular point of view (Checkland & Scholes, 1990). Models are therefore intellectual constructs, used to engender debate and not to describe reality.

SSM places its emphasis on the history of the situation and the view of the user, and people generally have different views on any given situation. So the ‘what’ and ‘how’ of improving a situation, will need to be discussed, as well as those who will judge the improvement.

The SSM researcher begins the inquiry by creation of the rich pictures which represents the situation, encompassing the points of view of the relevant stakeholders. He / She will try to depict the situation without any predefined framework or knowledge of any previous and similar situation. After expressing the situation in the form of a rich picture, the researcher then reflects upon it. In doing so, no specific problem is being sought after for which any particular problem can be proposed, but instead seeking to identify any patterns or aspects which encapsulate the characteristics of the situation and through such patterns is searching for systemic ways of learning more about the situation. The identification of the so called relevant systems is a major point in the inquiry process, and the remaining stages are there to identify the logical consequence of taking the particular view of the adopted relevant systems.

And from this point, to do this a root definition is formed from the initial notion of the system, by describing it in the words in which the essential activities of the notional system would logically have to perform. From then on the CATWOE is developed and the iterative process of learning begins, which may lead to adjusting the initial root definition and the notion that gave rise to it.

Other systemic diagramming techniques

Other systemic diagramming techniques have also been used in understanding and offering solutions to systemic problems. One of such techniques is the systems map which shows a snapshot of the structure of the system or a subsystem that is of interest, and it helps to provide information about key stakeholders, in terms of those who will judge success and those who will be crucial to success (Stewart & Fortune, 1995). System maps emphasise the structure of the sub system under study.

Another diagramming technique that is relevant to developing a representation of the system under study is the influence diagram. It helps to expose the relationships within the system and outside it (Stewart & Fortune, 1995), and helps the modeller understand which relationships are crucial and which ones need to be fostered. These diagrams go a step further in understanding the system and its components and help to bring a more generative understanding to the situation under study.

Discussion

Researchers like Leischow *et al.*(2008) and Snow & Leach(2005) have argued the need for using network analysis, in systemic interventions, and this paper goes into more detail in comparison with systems techniques, to show what exactly SNA can bring into the whole picture.

SSM is a methodology and its main aim is to understand a problem situation from the worldviews of the stake holders, and carry out necessary process of inquiry and generate learning for those involved. It could use various diagramming techniques, such as rich pictures to stimulate exploration and participation of stakeholders.

SNA on the other hand is a method used to analyse an identified network (system) to help uncover why certain issues have occurred in the network. This is done through

mathematical concepts and / or graphically. Fig. 2 details the difference and advantages that SNA has over the other diagramming techniques that have been mentioned.

	Systems map	SNA	Influence Diagrams
Defines structures	YES	YES	NO
Relative position	NO	YES	YES
Relationships	NO	YES	NO
Identifies sub groups and communities	NO	YES	NO
Valid from the actors point of view	NO	YES	NO
Provides quantitative analysis	NO	YES	NO
Possibility of providing underlying cause of situation	NO	YES	NO

Fig 2. Comparison of SSM diagramming techniques and SNA

The table shows that SNA depicts additional aspects to activity models, the influence maps and system maps, and in addition provides mathematical concepts for analysis. Viewing the system as a network provides the additional view of relative position which a system map would not give, and it also offers several possibilities of explaining the underlying causes of any identified issues.

Over the years SSM has been used in organisations / social systems / social networks and it has had a huge following in the research community and consultants alike, so it is rarely you come across any criticism of SSM. To drive home the importance of SNA as a technique to aid systemic intervention in social systems, here are some elements of criticism of SSM, as outlined by (Zexian, 2007): extreme subjectivism; ignores organisational structure; ignores imbalance of power in organisations

One of the major criticisms of SSM is the fact that it is too subjective in its approach, relying on participants' worldview to generate problem statements, explore links and offer and indeed judge the solutions. SNA can bring certain objectivity to the analysis phase of SSM in identifying links between actors that could be used as an explicit model for further exploration.

Looking at the second point of criticism, ignoring organisational structure in terms of hierarchy and the effect it has on the participants, it is the authors perspective that SNA is very efficient in identifying organisational structures in particular, and identifying power relations, in a manner that is valid, because it is not a group of actors defining their positions within the system but their position being defined by other actors. This is echoed in Snow & Leach (2005) example, that defining a network based on influence for instance, one does not ask "whom do you most influence", but "who most influences you".

SNA would give more insight into why certain perspective or feelings might be there in the first place, this of course is with additional qualitative methods like storytelling and interviews. By identifying actors that are of interest in the network, and using other qualitative techniques to elicit more information about other actors in the network under study, the whole picture of the system begins to look more complete, and more sense will be made of the reason behind the initially conceived problem statement. Looking at the network diagrams structurally, you can understand why information is or is not flowing through the system, because in most cases it is important for information to flow to foster relationships in systems (Borgatti & Cross, 2003; Leischow *et al.*, 2008). Studying positions, one can also identify why certain stake holders may not be involved in the intervention, and finally studying the dyadic relationships between actors in the network can give insight into how power is created in the network, influence, resource exchange etc. and all these are important in understanding peoples perspectives in the system.

Conclusion

SSM as a systemic approach for inquiry in social systems has been relatively successful, and has been widely adopted. A few criticisms that have been levelled at SSM for being too subjective mainly can be improved by adopting SNA as part of the analysis methods in social systems. SNA will also provide more in-depth understanding of why certain issues occur in the system, which will make it easier to understand and proffer solutions.

The graphical picture and mathematical analysis of SNA will also give SSM a different angle of seeing things in the inquiry process. In most social systems there will inevitably be the need to explain why certain stakeholders have towed a particular line, this can no doubt be picked up from the analysis done in SNA, but in most cases would require additional qualitative techniques to foster understanding of the system.

This paper argues that the use of SNA within a Soft Systems Analysis framework will be beneficial for gaining a generative insight and will lead to developing of feasible interventions.

References

- Borgatti, S. P. & Cross, R. (2003) 'A Relational View of Information Seeking and Learning in Social Networks', *Manage. Sci.*, 49 (4), pp. 432-445.
- Cezarino, L. O. & Beltrán, A. C. (2009) 'Diagnosis of Organisational Soft Problems in a Peruvian Financial Institution by Systemic Thinking', *Systemic Practice and Action Research*, 22 (2), pp. 101-110 *Business and Economics* [Online]. Available at: 10.1007/s11213-008-9115-7 (Accessed.
- Checkland, P. (1999) *Systems Thinking, Systems Practice*. Wiley & Sons.
- Checkland, P. & Scholes, J. (1990) *Soft Systems Methodology in Action*. Wiley & Sons.
- Knox, H., Savage, M. & Harvey, P. (2006) 'Social networks and the study of relations: networks as method, metaphor and form', *Economy & Society*, 35 (1), pp. 113-140.
- Leischow, S. J., Best, A., Trochim, W. M., Clark, P. I., Gallagher, R. S., Marcus, S. E. &
- Matthews, E. (2008) 'Systems thinking to improve the public's health', *American Journal of Preventive Medicine*, 35 (2), pp. S196-S203.
- Snow, R. M. & Leach, E. A. (2005) 'Social Network Analysis and Systems Change', [Online]. Available at: http://www.acasa.upenn.edu/ICSTM_Paper.pdf (Accessed.
- Stewart, R. W. & Fortune, J. (1995) 'Application of systems thinking to the identification, avoidance and prevention of risk', *International Journal of Project Management*, 13 (5), pp. 279-286.
- Wey, T., Blumstein, D. T., Shen, W. & Jordan, F. (2008) 'Social network analysis of animal behaviour: a promising tool for the study of sociality', *Animal Behaviour*, 75, pp. 333-344.

Wasserman, S. & Faust, K. (1999) Social Network Analysis. Cambridge, MA: Cambridge University Press.

White, L. (2008) 'Connecting organisations: Developing the idea of network learning in inter-organisational settings', Systems Research and Behavioral Science, 25 (6), pp. 701-716.

Zexian, Y. (2007) 'A new approach to studying complex systems', Systems Research and Behavioral Science, 24 (4), pp. 403-416.

APPENDIX I

Journal Paper

Mosindi, O., Sice, P., (2011a) ‘An exploratory theoretical framework for understanding information behaviour’, special issue of the journal of technology and human interaction, April 2011. Available at <http://dx.doi.org/10.4018/jthi.2011040101>

An Exploratory Theoretical Framework for Understanding Information Behaviour

Abstract

Recent trends in researching Information Behaviour in organisations show that the initial focus on technology has shifted to cognitive methods that take the individual into account, but more recently there has been a move to the social sciences approach. Literature shows that the social science approach has been informative but rather theoretic as there has been limited work using this approach to handle information problems in organisations. There is a need to develop and test theories to help understand Information Behaviour in organisations in a social science context that gives direct benefits to the organisation. It could be useful to view organisations as complex social networks of interactions, where importance is put on the relationships between people in the organisations, as well as on the individual actor. There is a need to evaluate and connect insights from social sciences communities of practice, and complexity theory. This paper explores insights from these theories and develops a conceptual framework for understanding Information Behaviour in organisations.

This is a conceptual paper that seeks to explore theories from different fields in the study of information behaviour; data collection is in a preliminary stage, mainly reflections and observations, of the researcher and a few participants. The intention is to provoke thoughts along the lines of seeking to use a synergy between theories that can offer different and useful platforms to help better understand the impact of information behaviour on organisational culture.

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Introduction

This paper focuses on developing and exploring a conceptual framework to contribute to the understanding of Information Behaviour (IB) in organisations, by attempting to achieve a synergy between enactive cognitive science, social science research and communities of practice, and complexity theory. The need for such a framework has arisen from the necessity to adopt a holistic approach encompassing the study of individual behaviours, human interactions, and cultural characteristics in diagnosing and improving the information environment in organisations. The study is grounded in the authors' experience in research and consultancy in a manufacturing company and their efforts to develop methods that deliver results in practice.

The theories are explained in later sections, to give you a good insight to what they all offer, and where there is possibility to achieve synergy between them. But first there is an discussion of research in information behaviour and factors that have been issues till date.

Interdisciplinary Nature and General Overview of Information Behaviour Research

Information behaviour (IB) has been studied in various fields most notably, psychology, sociology, information sciences, etc. The main platform of theories, which the studies have progressed from, were proposed by cognitive scientists with the focus on the characteristics of the individual human actor (Mutsheva, 2007) , and social sciences with the focus on how the individual's surroundings play a part in IB (Wilson, 2000; Pettigrew, Fidel & Bruce, 2001). The interdisciplinary nature of IB has led to various researchers having different definitions for the same terms and differing ideas, and thus, there has not been a general consensus in the study of IB. This may be a good thing considering the fact that it is a relatively new discourse, and the disparate views could be what the field needs to move forward and seek new findings to enhance understanding. A definition of IB that allows for a general description and wider focus

is used in this paper: “Information Behaviour (IB) is the perceptions and actions of individuals towards approaching and handling information“(Davenport, 1997).

It is well established in literature that information behaviour is directly related to the specific situations or contexts that give rise to the information need or use (Julien & Michels, 2000; Niedzwiedzka, 2003). Just like the context, there are other variables which Wilson (2000) calls intervening variables like the role the individual is in at the time. For example, an individual’s behaviour could be, different when in a professional role, and could be different in another role for the same individual. The environment also matters as one of the intervening variables, which could be looked at on a local or organisational level.

This shows that the context in which IB is studied plays an important role in the understanding elicited from the study. In effect, the way the organisation is viewed when studying it, has an impact on the nature of understanding that we get from the study. To put this in plain terms: “What we can know is determined by the available methods of knowing” (Poole & McPhee, 1994). There are also other factors that determine the information behaviour in organisations, such as the leadership, industry, media of communication, etc.

Most of the research on Information Behaviour in organisations, have focused on information seeking behaviour (Vakkari, 2008), a single type of proactive behaviour. Though information use has been sometimes incorporated in these studies, the individual’s variety of behaviours of information use, have not been looked at in detail, although these have an impact on organisational performance. For example, ignoring information, hoarding information, forwarding useful information to other actors, could be considered as part of the various dimensions of information behaviour. The involvement of the researcher in the study of the complex phenomenon of IB needs rethinking too, as the research process determines the quality of the outcomes.

Most of the research in IB has focused on studying the information behaviour of employees in organisations, but has delivered very limited results on understanding how to improve the information environment. For example, Chun Wei Choo (2008) suggests three information capabilities that organisations should be strong in to realize

superior performance results: Information technology practices, Information management practices Information behaviours and values; but there is no explanation as to how organisations should try to move towards achieving the third, i.e. information behaviour and values. The proposed framework seeks to offer ground for explanation of how information behaviour emerges and this provide a starting point for considering improvement.

Research and Framework Background

Organisations have been conceptualized in the past as ‘machines’, ‘organisms’, political systems, cultures, etc. (Morgan, 2006). More recent views of organisations have shifted towards using metaphors from complexity theory, cognitive science and the social sciences, and all these views seek to understand organisations as complex social networks of interactions. The way organisations have been understood as systems, and self organizing parts that make up the whole, takes away the complexity that exists in reality as humans are capable of making decisions, which parts of systems like mechanical or biological systems do not possess. So viewing organisations as complex social networks will help put into context the individuals background, group dynamics and the effects these have in shaping information culture and behaviour. One of the major concerns of organisations is to improve performance, survive, innovate and compete in an ever changing environment. So it is necessary for research in organisations to address this concern and look for result oriented methodologies. Figure 1 attempts to present the needed link between the real world problem and a result oriented methodology, which is missing in current IB research.

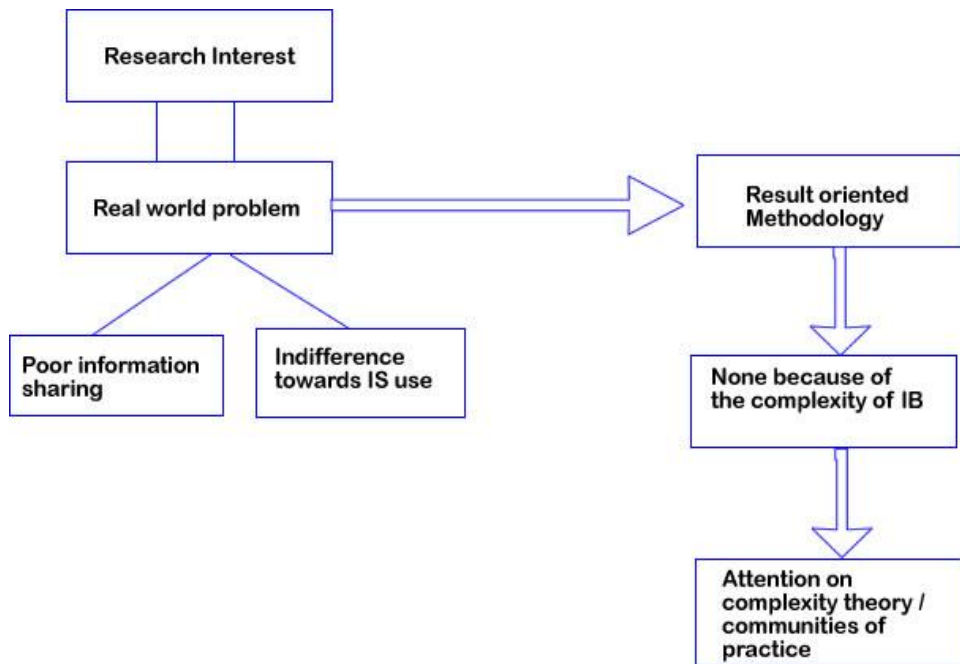


Fig 1. Underlying Problem Background

The frame in Figure 1 is grounded in a real world problem. The problem is generic. It is encountered at a manufacturing company, which has a traditional organisational structure with several departments; there is lack of information sharing between these departments, and there is indifference towards using the available information systems, i.e. wherever possible, people put in the minimum effort, in maintaining the data in the system, which affects the generated output, and in turn affects data availability to make well informed decisions.

Through the lenses of the researchers' Worldview and research interests, it has been perceived that the underlying background of the problem is rooted in Information Behaviour.

A result oriented methodology for studying information behaviour was sought, but to no avail. This is largely due to the complex nature of the phenomenon of IB. Literature review suggests that several theories from related fields, i.e. complexity theory and communities of practice suggest an approach towards achieving practical results.

Framework for Understanding Information Behaviour

The proposed framework of understanding encompasses insights from complexity theory, communities of practice and the theory of autopoiesis.

Complexity theory

Focuses on explaining the emergence of complex behaviour. As Mitleton-Kelly (2001) puts it: ‘ in thermodynamics the focus is on where heat comes from and goes to, complexity science is more concerned as to how the complexity comes about.

The term Complex Systems Theory is often used as a replacement of Complexity Theory. As humans we describe the world in terms of simple and composite unities, i.e. systems. Systems have become the means of understanding and explaining behaviour. The theory of complex systems is the overarching framework that is really about how systems evolve and change. The insights of complexity come from contemporary discoveries in non-linear dynamics and chaos theory and are particularly useful in understanding and analysing how complex behaviour emerges from the interactions between the systems elements.

When elements of the system interfere, or cooperate, or compete, there are non-linear interactions going on. Most of everyday life is non-linear and thus the principle of superposition fails spectacularly. If you invest twice as much in advertising, you do not necessarily get twice as much sale. If you invest twice the effort you do not necessarily achieve twice the outcome. It is now well-recognised that people behave in a non-linear way. People have choices, they often react in ways that are stubbornly individual, even peculiar, and group behaviour is more than simply the sum of individual behaviours. (Sice and French, 2006)

While it may be useful to look at human enterprises as complex systems it is important not to overlook the open nature of such systems and the continuous emergence of new interactions by way of gesture and response, that lead to further interactions which

shape the power relations, norms, culture in organisations, which in turn shape those interactions (Stacey, 2001). Stacey chooses to look at organisations as Complex Responsive Processes (and not as Systems), i.e. networks of interactions, of gestures and response, and argues that these are the basis for emergence and explanation of behaviour in human enterprises.

By using metaphors from complexity theory, the reason behind the complex nature of complex phenomena can be better understood. Though we understand why a phenomenon may be complex, the causal links between the local level activities and the emerging global activities cannot be determined, because to make a causal link, there has to be a form of generalization, which is difficult as many subjective factors that influence IB cannot allow generalizations (Mitleton-Kelly, 2001).

Though it sounds like this would not be of much help to the researcher, the fact that we are able to understand that these outcomes cannot be predicted, helps the researcher to set more modest objectives, and appreciate the need to get more involved in the intricate details that bring about the phenomenon on a global level. For example viewing emergence in terms of information culture, it can be perceived as generated from the interaction of different individual IB, but studying the individual IB cannot determine the information culture in the organisation, so it is an emergent property. But there have been attempts to determine an organisations information culture by using surveys on employees, and the outcome was a generalization from the responses of the employees as to what the information culture of the organisation was through their IB.

It is necessary to know if the individual behaviour actually influences the information culture or does the policies and organisational structure alone decide this? Based on emergence, the global outcomes in turn affect the local activities, so it would be useful to know if the information culture actually impacts back on the information behaviour of the individuals

Communities of Practice (COP)

COP was defined by Wenger (1998) as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”. Like the definition suggests these people interact to learn better ways of achieving their goals, through sharing experiences, information and knowledge. The concept has been adopted most readily by organisations because of the recognition that knowledge is an asset to the organisation and as such needs to be nurtured and managed properly. Initial efforts on knowledge creation in organisations had focused mainly on information systems, but COP provides a new approach, which focuses on people and on the social structures that enable them to learn with and from each other. It is our opinion, that further development of the COP approach to information sharing and use needs to be informed by enactive cognitive science, i.e. the theory of autopoiesis. The body of knowledge known as autopoiesis was developed in 1980s by the biologists Humberto Maturana and Francisco Varela to explain the generative dynamics of living systems. The theory has found much wider application for understanding humans, organisations and communities and the impact of the human condition, i.e. wellbeing and quality of life on the effectiveness of communication and innovation in social systems. (Sice and French, 2004)

Synergies of insights from complexity theory, communities of practice and autopoiesis would allow for a holistic approach to studying IB by viewing the individual, the network of interactions and the emergent properties of human enterprises as mutually determined entities.

Some Reflections on the Practical Application of the Framework in IB Research

Based on the research questions and the problem at hand, the framework suggests starting off with gathering information on individual’s backgrounds, beliefs, perspectives, history, etc. On a social level, observing, studying and understanding the

interactions between the individual and their immediate information environment, the people they share information with, are important. Communities of practice can be used to guide the observation of the interactions, taking into account norms and values in the organisation. The effect of these interactions on the organisation can be understood through using analogies from complex responsive processes to analyze data and emergent features in the organisation.

The metaphors used to understand organisations, play a fundamental role in how we interpret studies that are carried out in organisations. Using metaphors from complexity theory will help give new insights to studying IB in organisations. The perspective of complex responsive processes fits with the social practices suggested by communities of practice, and if the cognitive aspects of the individual are taken into account, the complexity of IB might be understood better; and this would lay a foundation for studies linking IB to organisational performance, hence the suggestion of a synergy of the theories. The researcher would also need to be involved in the everyday activities of the organisation, observing, interviewing and reflecting on issues relating the research questions, and the problem at hand.

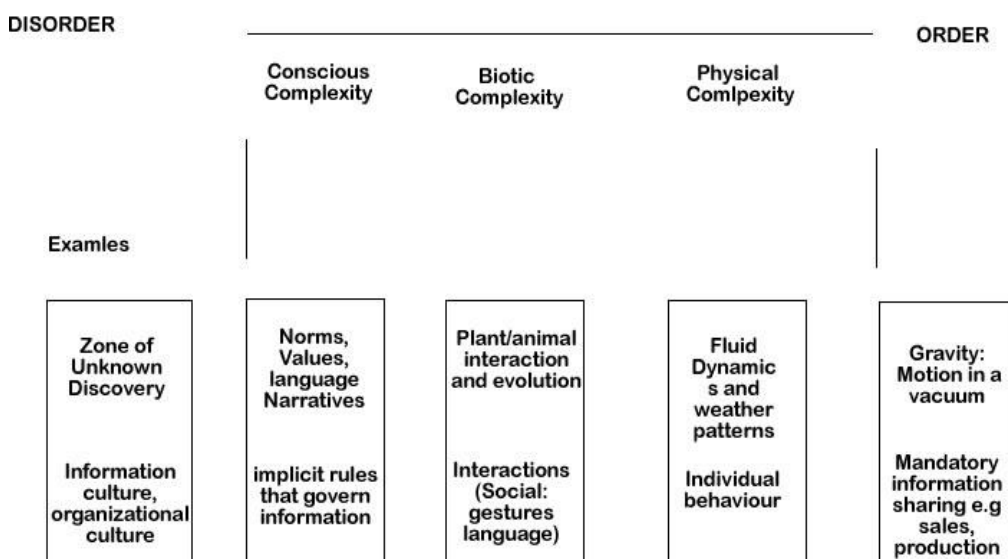


Fig. 2 An Example of a Complexity Mapping Tool

The tool presented in Figure 2 is used to diagnose the level of complexity of different phenomena, and it can be applied to a range of fields. Looking at it from an information

perspective as the diagrams shows, it gives an insight as to what the members of an organisation view as complex, and also the degree of complexity with regard to information sharing and usage in the organisation. In terms of analysis, this will serve as a starting point for breaking down information related issues in the organisation, and help to discuss what gives rise to the perceived complexity in these issues.

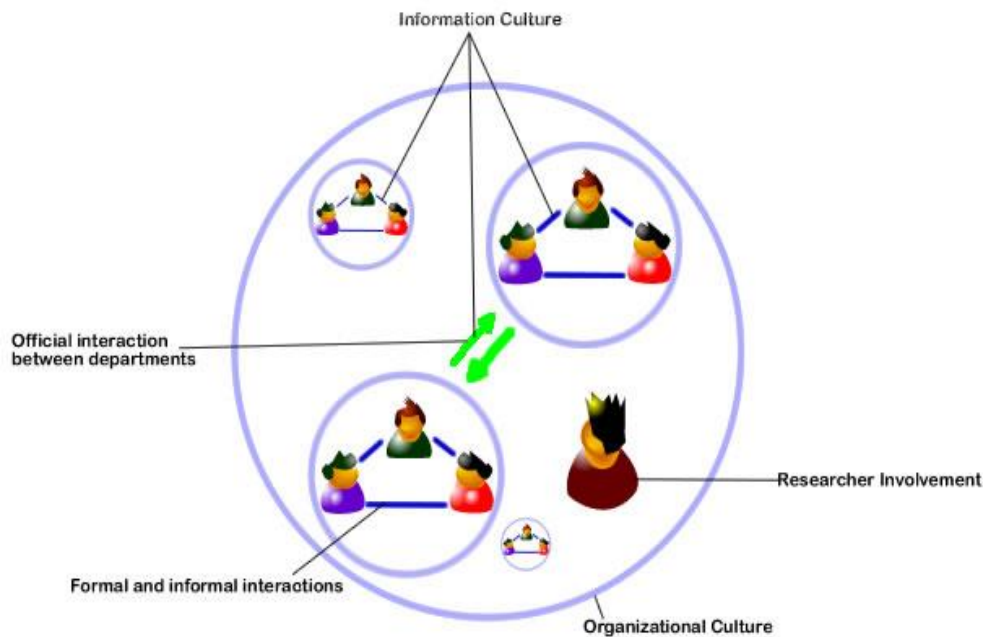


Fig 3 Framework Overview

A brief overview of the main factors in the suggested framework, are shown in the diagram above. It shows the ground level interactions (formal and informal), information culture, organisational culture which affects the information culture, and stresses researcher involvement in the research environment.

Current work

A research study, aiming at understanding IB by viewing organisations as complex social networks, with a view to improving organisational performance, is in the process of being carried out at a manufacturing company, as part of a global corporation, with a parent company in Germany, and other branches all over the world.

A Socratic dialogue workshop was used to inquire into how people perceive information, what criteria are applied to identify information in an organisational context. Participants are also asked to fill out a diary on a bi-weekly basis, as to how they seek information when the need arises, and how they respond to information in an organisational context. Further data gathering will be informed by the framework described in this paper.

Conclusion

The phenomenal domain of human enterprises is realised through the network of interactions between the human actors. Such networks through the interactions of local agents are capable of spontaneous self-organisation, to produce emergent orderly, evolving patterns of behaviours of the network without any prior comprehensive blueprint for evolution. The immediate local ‘intentions’ of the interacting agents are continually emerging in a context. The dynamics are determined by the pattern and nature of the actors’ relationships. Coherence is realised through communication, information sharing and use.

The individual actors exhibit non-linear behaviour, i.e. their behaviour depends on their embodiment, their environment and context of activity. The understanding of the complex processes of interactions, the dynamics of gesture and response, are important pre-requisites in studying Information Behaviour in organisations. The conceptual framework for IB research proposed in this paper attempted a synergy of insights from complexity theory, communities of practice and theory of autopoiesis.

References

Chun Wei Choo, P. B. B. D. L. H. (2008) 'Information culture and information use: An exploratory study of three organisations', *Journal of the American Society for Information Science and Technology*, 59 (5), pp. 792-804.

Julien, H. & Michels, D. (2000) 'Source selection among information seekers: Ideals and realities', *Canadian Journal of Information and Library Science-Revue Canadienne Des Sciences De L Information Et De Bibliotheconomie*, 25 (1), pp. 1-18.

Julien, H. & Michels, D. (2004) 'Intra-individual information behaviour in daily life', *Information Processing & Management*, 40 (3), p. 547.

Mitleton-Kelly, E. (2001) *Complexity Science and Order Creation*, 08/06/2001.

Morgan, G. (2006) *Images of organisation*. Updated edition edn. California: Sage Publications.

Mutshewa, A. (2007) 'A theoretical exploration of information behaviour: a power perspective', *Aslib Proceedings: New Information Perspectives*, 59 (3), pp. 249-263 [Online]. Available at: <http://www.emeraldinsight.com/Insight/ViewContentServlet?Filename=Published/EmeraldFullTextArticle/Articles/2760590304.html> (Accessed: 22/01/09).

Niedzwiedzka, B. (2003) 'Proposed general Model of information behaviour', *Information Research*, 9 (1) [Online]. Available at: <http://informationr.net/ir/9-1/paper164.html> (Accessed).

Pettigrew, K. E., Fidel, R. & Bruce, H. (2001) 'Conceptual frameworks in information Behavior', *Annual Review of Information Science and Technology*, 35, pp. 43-78.

Poole, S. M. & McPhee, R. D. (1994) 'Methodology in interpersonal communication research', in *Handbook of interpersonal communication*. Oaks California: Sage publications, pp. 42-99.

Sice P., French I., (2006): *A Holistic Frame of Reference for Modelling Social Systems*, *Kybernetes*, ISSN 0368-492X , Vol. 35, No 5-10.

Sice P., French I., (2004): *Understanding Humans and Organisations*

– *Philosophical Implications of Autopoiesis*, Journal of Philosophy of Management, Special Issue on Organisation and Decision Processes, Vol 4 No 1, 2004, pp 55-66.
Stacey, R. D. (2001) *Complex Responsive Processes in Organisations - Learning and Knowledge Creation* Northumbria University Library [Online]. Available at: <http://northumbria.etailer.dpsl.net/home/html/moreinfo.asp?bookId=536902678&category=EB030000&whichpage=&pagename=category.asp>

Vakkari, P. (2008) 'Trends and approaches in information behaviour research', *Information Research*, 13 (4), December 2008 [Online]. Available at: <http://informationr.net/ir/13-4/paper361.html>

Wenger, E. (1998) *Communities of practice: Learning, Meaning, and Identity* Cambridge University Press.

Wilson, T. (2008) 'The information user: past, present and future', *Journal of Information Science*, 34 (4), pp. 457-464.

Wilson, T. D. (2000) 'Recent trends in user studies: action research and qualitative methods', *Information Research*, 5 (3) [Online]. Available at: <http://informationr.net/ir/5-3/paper76.html> (Accessed: 15th Jan 2009).

APPENDIX K

Nvivo Analysis Screen capture

Nvivo screen capture showing the analysis categories

Nodes

Nodes

Cases

Free Nodes

Tree Nodes

Relationships

Node Matrices

Sources

Nodes

Classifications

Collections

Queries

Reports

Models

Folders

Look for:

Search In

Tree Nodes

Find Now

Clear

Advanced Find

Tree Nodes

Name	Sources	References	Created On	Created By	Modified On	Modified By
Case 1	0	0	19/04/2011 11:23	OO	02/06/2013 16:54	OO
Case 1A	0	0	23/03/2011 20:07	OO	02/06/2013 16:54	OO
Context	0	0	08/04/2011 18:36	OO	08/04/2011 18:36	OO
Emotions	0	0	29/03/2011 16:41	OO	29/03/2011 16:41	OO
Factors	0	0	23/03/2011 20:07	OO	23/03/2011 20:07	OO
Power	0	0	29/03/2011 16:41	OO	29/03/2011 16:41	OO
Process	0	0	08/04/2011 18:36	OO	08/04/2011 18:36	OO
Case 1B	0	0	19/04/2011 11:23	OO	02/06/2013 16:54	OO
Context	0	0	26/04/2011 20:39	OO	26/04/2011 20:39	OO
Emotion	0	0	26/04/2011 20:39	OO	26/04/2011 20:39	OO
Factors	0	0	26/04/2011 20:39	OO	26/04/2011 20:39	OO
Power	0	0	26/04/2011 20:39	OO	26/04/2011 20:39	OO
Process	0	0	26/04/2011 20:39	OO	26/04/2011 20:39	OO
Case 2	0	0	02/05/2011 00:50	OO	02/06/2013 16:54	OO
Context	0	0	08/05/2011 12:20	OO	08/05/2011 12:20	OO
Emotions	0	0	08/05/2011 12:21	OO	08/05/2011 12:21	OO
Findings	0	0	04/05/2011 23:35	OO	04/05/2011 23:35	OO
Initial Coding	0	0	02/05/2011 00:51	OO	24/03/2011 13:29	OO
Power	0	0	08/05/2011 12:21	OO	08/05/2011 12:21	OO
Process	0	0	08/05/2011 12:21	OO	08/05/2011 12:21	OO

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Nvivo screen capture showing analysis coding nodes

Tree Nodes

Name	Sources	References	Created On	Created By	Modified On	Modified By
Case 1	0	0	19/04/2011 11:23	00	02/06/2013 16:54	00
Case 1A	0	0	23/03/2011 20:07	00	02/06/2013 16:54	00
Context	0	0	08/04/2011 18:36	00	08/04/2011 18:36	00
Emotions	0	0	29/03/2011 16:41	00	29/03/2011 16:41	00
Fear of change	1	1	29/03/2011 18:24	00	29/03/2011 18:24	00
Feeling moody or down	2	2	29/03/2011 17:54	00	08/04/2011 18:51	00
Feeling obliged	2	2	29/03/2011 17:39	00	08/04/2011 18:51	00
Satisfaction with the role	2	3	29/03/2011 18:19	00	31/03/2011 11:55	00
Unwillingness due to past experi	2	5	29/03/2011 17:17	00	08/04/2011 18:51	00
Factors	0	0	23/03/2011 20:07	00	23/03/2011 20:07	00
Initial Coding	0	0	24/03/2011 13:29	00	24/03/2011 13:29	00
Findings	0	0	24/03/2011 13:30	00	24/03/2011 13:30	00
Formal and informal relation	1	1	24/03/2011 14:52	00	24/03/2011 16:55	00
Indirect factors	0	0	24/03/2011 15:26	00	24/03/2011 15:26	00
Involvement	1	1	24/03/2011 14:21	00	08/04/2011 18:51	00
Knowledge and Experience	0	0	24/03/2011 16:27	00	24/03/2011 16:38	00
Length of time at organ	1	1	24/03/2011 15:07	00	24/03/2011 16:41	00
Proactivity	1	1	24/03/2011 15:06	00	24/03/2011 16:38	00
Responsibility	1	2	24/03/2011 15:06	00	24/03/2011 16:40	00
Role	1	1	24/03/2011 15:07	00	24/03/2011 16:42	00
Nature of information	0	0	24/03/2011 14:17	00	24/03/2011 14:17	00
Past Experiences	1	1	24/03/2011 14:22	00	08/04/2011 18:51	00
Proactivity	0	0	24/03/2011 14:16	00	24/03/2011 14:16	00
Reciprocity	0	0	24/03/2011 14:21	00	24/03/2011 14:21	00
Role	1	3	24/03/2011 13:49	00	08/04/2011 18:51	00
Power	0	0	29/03/2011 16:41	00	29/03/2011 16:41	00

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